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VOLUME 10 PART 1

NORTH AMERICAN FLORA

(AGARICALES)

AGARICACEAE (pars)

WILLIAM ALPHONSO MURRILL

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THE NEW YORK BOTANICAL GARDEN

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ANNOUNCEMENT

The NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

Volume 1. Mycetozoa, Schizophyta, Diatomaceae.

Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

Volumes 14 and 15. Bryophyta.

Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones.

Volumes 20 to 32. Dicotyledones.

The preparation of the work has been referred by the Scientific Directors of the Garden to a committee consisting of Dr. N. L. Britton, Dr. W. A. Murrill, and Dr. J. H. Barnhart.

Professor George F. Atkinson, of Cornell University; Professor John M. Coulter, of the University of Chicago; Mr. Frederick V. Coville, of the United States Department of Agriculture; Professor Edward L. Greene, of the United States National Museum; Professor Byron D. Halsted, of Rutgers College; and Professor William Trelease, of the University of Illinois, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

The subscription price is fixed at $1.50 for each part; it is expected that four or five parts will be required for each volume. A limited number of separate parts will be sold at $2.00 each. Address:

THE NEW YORK BOTANICAL GARDEN

BRONX PARK

NEW YORK CITY

Family 7. AGARICACEAE*

By William Alphonso Murrill

42. LACCARIA Berk. & Br. Ann. Mag. Nat. Hist. V. 12: 370. 1883.

Russuliopsis Schröt. Krypt. Fl. Schles. 3¹: 622. 1889.

Pileus fleshy, putrescent, thin, hygrophanous, solitary or gregarious; lamellae broadly adnate, thick, conspicuously whitened by the spores; spores hyaline, globose, verruculose or echinulate; stipe central, fleshy or fibrous; veil none.

Type species, *Agaricus laccatus* Scop.

Pileus 1–5 cm. broad.	
Lamellae violaceous.	1. *L. amethystea.*
Lamellae incarnate or pallid.	
Pileus 0.5–1 cm. broad, irregular; spores echinulate, 12–16 μ.	2. *L. tortilis.*
Pileus 1.2–5 cm. broad, regular; spores verruculose, 8–13 μ.	
Pileus 2 cm. or less broad, striatulate, spores 11–13 μ.	3. *L. striatula.*
Pileus usually larger, smooth; spores 8–10 μ.	4. *L. laccata.*
Pileus 5–10 cm. broad.	5. *L. ochropurpurea.*

1. Laccaria amethystea (Bull.) Murrill.

Agaricus amethystinus Bolt. Hist. Fung. Halifax 41. 1788. Not *A. amethystinus* Scop. 1772.
Agaricus amethysteus Bull. Herb. Fr. *pl. 198.* 1784.

Pileus thin, broadly convex, umbilicate or centrally depressed, solitary or gregarious, 1.2–2.5 cm. broad; surface hygrophanous, brown or violaceous-brown when moist, grayish when dry, unpolished; lamellae subdistant, adnate or decurrent, violaceous, color more persistent than in the pileus; spores globose, verruculose, 8–10 μ; stipe slender, equal, flexuous, hollow, concolorous or paler, 2.5–5 cm. long, 2–4 mm. thick.

Type locality: France.
Habitat: Damp ground in shaded places.
Distribution: Eastern temperate North America; also in Europe.
Illustrations: Sow. Engl. Fungi *pl. 187;* Bull. Herb. Fr. *pl. 198, pl. 570, f. 1 G;* Ann. Rep. N. Y. State Mus. 48: *pl. 25, f. 23–27.*

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*The following key will aid in distinguishing the ten remaining genera in the white-spored series of the tribe Agariceae, which are treated in the first part of the present volume. They agree in having the hymenophore fleshy or membranous, not reviving, the pileus regular, the stipe central, stout, fleshy, of uniform texture, and the lamellae entire, fleshy, not waxy. The currently accepted genus *Clitocybe* differs from *Laccaria* in having smooth or only slightly roughened spores and decurrent or adnate lamellae. These ten genera will also be included in a general key to the series to be published shortly in part 4 of volume 9.

Volva and veil absent, the latter sometimes rudimentary.	
Lamellae broadly adnate; spores globose, verruculose or echinulate.	42. Laccaria.
Lamellae sinuate; spores usually ellipsoid and smooth.	
Pileus smooth or inconspicuously decorated with fibrils or scales.	43. Melanoleuca.
Pileus conspicuously decorated with fibrils or scales.	44. Cortinellus.
Volva absent, veil present, usually forming an annulus.	
Stipe eccentric.	45. Pleurotus.
Stipe central.	
Lamellae adnate or adnexed.	46. Armillaria.
Lamellae free, varying at times to adnexed or adnate.	
Spores hyaline, rarely tinged with brown.	
Pileus viscid.	47. Limacella.
Pileus dry.	48. Lepiota.
Spores green when fresh, brown in herbarium specimens.	49. Chlorophyllum.
Volva present, veil absent.	50. Vaginata.
Volva and veil both present.	51. Venenarius.

2. **Laccaria tortilis** (Bolt.) Pat. Hymén. Eur. 97. 1887.

Agaricus tortilis Bolt. Hist. Fung. Halifax 41. 1788.
Clitocybe tortilis Sacc. Syll. Fung. 5: 198. 1887.

Pileus membranous, convex, plane or centrally depressed, irregular, closely gregarious or cespitose, 5–10 mm. broad; surface subferruginous, obscurely striate, margin deflexed and sometimes torn; lamellae thick, subdistant, adnate, flesh-colored; spores globose, echinulate, 12–16 μ; stipe short, equal or slightly thickened at the base, stuffed or hollow, twisted, fragile, concolorous, 8–12 mm. long, 0.5–1 mm. thick.

TYPE LOCALITY: England.
HABITAT: Damp places in woods or by roadsides.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATIONS: Bolt. Hist. Fung. Halifax *pl. 41, f. A;* Boudier, Ic. Myc. *pl. 59;* Pat. Tab. Fung. *pl. 105.*

3. **Laccaria striatula** Peck, Bull. N. Y. State Mus. 157: 93. 1912.

Clitocybe laccata striatula Peck, Ann. Rep. N. Y. State Mus. **48**: 274. 1897.

Pileus very thin, submembranous, convex or nearly plane, gregarious, 12–20 mm. broad; surface glabrous, hygrophanous, buff-red and striatulate when moist, grayish or pale-buff when dry; lamellae broad, distant, adnate, pale-flesh-colored; spores globose or subglobose, verruculose, 11–13 μ; stipe slender, equal, fibrous, hollow, concolorous, 1.5–3 cm. long, 1–2 mm. thick.

TYPE LOCALITY: Albany County, New York.
HABITAT: In wet or damp places.
DISTRIBUTION: Northeastern United States.
ILLUSTRATIONS: Mycologia **3**: *pl. 40, f. 4;* Ann. Rep. N. Y. State Mus. **48**: *pl. 25, f. 14–18.*

4. **Laccaria laccata** (Scop.) Berk. & Br. Ann. Mag. Nat. Hist. V. **12**. 370. 1883.

Agaricus laccatus Scop. Fl. Carn. ed. 2. **2**: 444. 1772.
Clitocybe laccata Quél. Champ. Jura Vosg. 55. 1872.

Pileus fleshy, rather thin, convex or nearly plane, sometimes umbilicate or centrally depressed, solitary, gregarious or cespitose, 1.2–5 cm. broad; surface hygrophanous, glabrous, furfuraceous or minutely squamulose, pale-red, buff-red or flesh-red when moist, pale-ochraceous, grayish or buff when dry, margin smooth; lamellae rather broad, thick, subdistant, adnate or decurrent, flesh-colored or pale flesh-colored; spores globose, verruculose, 8–10 μ; stipe long or short, nearly or quite equal, fibrous, firm, straight or flexuous, stuffed, concolorous, 2.5–7.5 cm. long, 2–6 mm. thick.

TYPE LOCALITY: Carniola.
HABITAT: Woods, groves, swamps, mossy places and pastures in wet, dry or sandy soil and even in sphagnum.
DISTRIBUTION: Cosmopolitan.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 25, f. 1–13;* Bull. N. Y. State Mus. 116: *pl. 106, f. 1–6;* Cooke, Brit. Fungi *pl. 139 (179);* Schaeff. Fung. Bavar. *pl. 13;* Sow. Engl. Fungi *pl. 208.*

5. **Laccaria ochropurpurea** (Berk.) Peck, Ann. Rep. N. Y. State Mus. **50**: 129. 1897.

Agaricus (Clitocybe) ochropurpureus Berk. Hook. Lond. Jour. **4**: 299. 1845.

Pileus fleshy, firm, subhemispheric or convex becoming plane or slightly centrally depressed, often very irregular and very variable in size and shape, solitary or rarely gregarious, 5–10 cm. broad; surface hygrophanous, purplish-brown when moist, grayish or pale-alutaceous when dry, unpolished, margin decurved; context edible; lamellae thick, distant, broad, adnate or decurrent, purplish; spores globose, verruculose, 8–10 μ; stipe variable, short or long, equal or sometimes thicker in the middle, sometimes at each end, fibrous, solid, concolorous or paler, firm, 3–8 cm. long, 4–12 mm. thick.

TYPE LOCALITY: Columbus, Ohio.
HABITAT: Open grassy or bushy places, or thin woods.
DISTRIBUTION: Temperate North America.
ILLUSTRATIONS: Bull. Chicago Acad. Sci. **7**: *pl. 3, f. 2;* Bull. N. Y. State Mus. 116: *pl. 106, f. 7–11.*

DOUBTFUL SPECIES

Agaricus (*Clitocybe*) *glaucipes* Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 2. 1859. Described from Connecticut. The lamellae are described as white, but were probably dusted with spores.

Agaricus ohiensis Mont. Syll. Crypt. 100. 1856. Collected by Sullivant near Columbus, Ohio. The lamellae are described as long-decurrent, but this may possibly refer to their decurrent teeth.

Clitocybe rubrotincta Berk. & Curt. Jour. Linn. Soc. **10**: 284. 1868. Collected by Wright in Cuba. The lamellae are described as decurrent and also thinner than in *Laccaria laccata*.

43. MELANOLEUCA Pat. Tax. Hymén. 159. 1900.

Tricholoma Quél. Champ. Jura Vosg. 38. 1872. Not *Tricholoma* Benth. 1820.
Melaleuca Pat. Hymén. Eur. 96. 1887. Not *Melaleuca* L. 1767.
Glutinaster Earle, Bull. N. Y. Bot. Gard. **5**: 433. 1909.

Fleshy, putrescent, solitary or gregarious, rarely cespitose; surface dry or viscid, glabrous or inconspicuously decorated with fibrils or scales; context usually thick; lamellae sinuate or adnexed, rarely varying to adnate; spores hyaline, usually ellipsoid and smooth; stipe central, fleshy, usually stout; veil none or inconspicuous.

Type species, *Tricholoma melaleucum* (Pers.) Quél.

Species occurring in temperate North America, except those confined to the Pacific coast. I.
Species occurring on the Pacific coast. II.
Species occurring in tropical North America. III.

I. SPECIES OCCURRING IN TEMPERATE NORTH AMERICA, EXCEPT THOSE CONFINED TO THE PACIFIC COAST

Surface dry or only slightly viscid, glabrous or indistinctly decorated with fibrils or scales.
Surface of pileus mostly white or pallid.
Sporophore with long, slender stipe and thin pileus, resembling *Collybia;* occurring mostly among grass in the open.
Pileus white, sometimes tinged with yellowish, 5–7.5 cm. broad. 1. *M. alboflavida.*
Pileus white, at times brownish on the umbo, 8–14 cm. broad. 2. *M. grammopodia.*
Pileus pale-cinereous or grayish-brown, 4–6.5 cm. broad. 3. *M. subcinerea.*
Pileus fawn-colored to fuliginous, 3–6 cm. broad. 4. *M. melaleuca.*
Sporophore not as above; stipe and pileus more normal for the genus.
Lamellae white, unchanging.
Pileus acutely umbonate. 5. *M. subacuta.*
Pileus obtuse or obtusely umbonate.
Surface of pileus uniformly white or nearly so.
Sporophores solitary to cespitose, but not united as below.
Taste acrid or bitter.
Pileus whitish or pale-gray, innately fibrillose; stipe 2.5–5 cm. long. 6. *M. acris.*
Pileus white, glabrous, sometimes yellowish and slightly pruinose on the disk; stipe 5–10 cm. long. 7. *M. albissima.*
Taste neither acrid nor bitter.
Pileus white tinged with yellow, changing to sulfur-yellow when bruised; stipe with sordid-yellow scales. 8. *M. luteomaculans.*
Pileus not changing as above when bruised.
Spores large 11–12.5 × 7.5 μ. 9. *M. silvatica.*
Spores not more than half as large.
Context having a pleasant odor.
Taste mild; lamellae rather distant. 10. *M. pallida.*
Taste farinaceous; lamellae rather crowded. 11. *M. leucocephaloides.*
Context having the odor of sour dough; species known only from Alabama. 12. *M. subacida.*
Sporophores united at the base in a large, fleshy mass; pilei 2.5–5 cm. broad. 13. *M. unifacta.*
Surface of pileus white, but distinctly darker or differently colored at the center.
Lamellae very much crowded.
Pileus small, 2–5 cm. broad; taste mild. 14. *M. Kauffmanii.*
Pileus larger, 5–12 cm. broad; taste bitter or acrid.
Taste at first mild, becoming acrid. 15. *M. serratifolia.*

Taste bitter, odor farinaceous. 16. *M. lateraria.*
Lamellae of medium distance or moderately close.
Pileus large, 6–14 cm. broad, becoming yellow or saffron-colored when bruised. 17. *M. subsaponacea.*
Pileus smaller, never over 8 cm. broad, not changing as above when bruised.
Stipe much enlarged at the base; pileus white or yellowish, becoming isabelline to fulvous on drying. 18. *M. Robinsoniae.*
Stipe distinctly radicate, 4–10 cm. long. 19. *M. radicata.*
Stipe not as above.
Lamellae transversely striate or venose. 20. *M. striatifolia.*
Lamellae not as above.
Spores 6.5 ×5 μ. 21. *M. impolitoides.*
Spores 4.5 ×3.5 μ. 22. *M. fumidella.*
Lamellae subdistant to distant.
Pileus brownish or grayish-brown at the center; odor and taste strong and unpleasant. 23. *M. terraeolens.*
Pileus reddish-gray at the center; odor and taste not unpleasant. 24. *M. infantilis.*
Lamellae white, changing color with age or on drying.
Sporophore very large; 12–20 cm. broad.
Lamellae becoming pale-salmon or cream-colored; stipe attenuate below. 25. *M. magna.*
Lamellae becoming dirty-yellowish or brownish; stipe decidedly bulbous. 26. *M. praemagna.*
Sporophore smaller, 10 cm. or less broad; lamellae becoming gray, brown, or blackish.
Pileus dingy-white, hygrophanous, usually brownish on the disk, 2.5–5 cm. broad. 27. *M. trentonensis.*
Pileus uniformly white or pallid.
Pileus small, 2–3 cm. broad; lamellae becoming smoky-blue or blackish. 28. *M. fumescens.*
Pileus large, 5–10 cm. broad; lamellae becoming dingy or tinged with reddish-brown. 29. *M. lata.*
Lamellae pallid or yellowish, becoming fulvous or bay with age; context changing quickly to bright-yellow when bruised. 30. *M. Memmingeri.*
Lamellae yellow; pileus white, becoming dark with age. 31. *M. subdura.*
Surface of pileus mostly some shade of yellow.
Lamellae white, unchanging.
Stipe white, solid. 32. *M. edura.*
Stipe white, hollow. 33. *M. fumosolutea.*
Stipe yellow except at the base, solid. 34. *M. sublutea.*
Lamellae white, becoming tinged with salmon.
Pileus bright-yellow, becoming reddish or variously tinted. 35. *M. Davisiae.*
Pileus isabelline, fulvous at the center. 36. *M. unakensis.*
Lamellae white or tinged with pink; odor strong, jessamine-like. 37. *M. odora.*
Lamellae white or pale-yellowish, often darker yellow with age.
Growing on wood; without characteristic odor. 38. *M. Thompsoniana.*
Growing on the ground.
Becoming strongly aromatic. 39. *M. aromatica.*
Not at all aromatic. 40. *M. venenata.*
Lamellae yellow, unchanging.
Pileus pale-honey-yellow; spores 8–9 ×5.5–6.5 μ. 41. *M. odorifera.*
Pileus dull-saffron-colored; spores 3–4 μ long. 42. *M. Naucoria.*
Lamellae yellowish, becoming dingy or blackish with age or on drying.
Spores 7.5–10 ×5–6 μ. 43. *M. chrysenteroides.*
Spores 4 ×2 μ. 44. *M. thujina.*
Surface of pileus yellowish-gray or subolivaceous, dusky on the disk; species known only from Alabama. 45. *M. alabamensis.*
Surface of pileus mostly green or greenish.
Pileus pallid or glaucous to pale-olive, becoming blackish when bruised. 46. *M. longipes.*
Pileus dingy-green, unchanging when bruised. 47. *M. viriditincta.*
Surface of pileus mostly some shade of red, purple, or lilac.
Pileus small, 5 cm. or less broad.
Pileus flesh-colored, 2–5 cm. broad, lamellae white. 48. *M. paeonia.*
Pileus dull-reddish-purple, 1–2 cm. broad; lamellae purplish to yellowish. 49. *M. microspora.*
Pileus watery-red to violet, 3–5 cm. broad; lamellae whitish to yellowish. 50. *M. ionides.*
Pileus large, 5–10 cm. broad.
Pileus reddish-brown, brown-spotted on drying, lamellae cinereous. 51. *M. maculatescens.*
Pileus pale-alutaceous, lamellae pale-yellow, purplish-brown on drying. 52. *M. tricolor.*
Pileus pale-rosy-avellaneous, becoming brownish when injured; lamellae white tinged with rose. 53. *M. Earleae.*

- Surface of pileus mostly some shade of yellowish-brown or brown.
  - Lamellae white, unchanging.
    - Pileus thin, hygrophanous, often splitting at the margin. 54. *M. rimosa.*
    - Pileus not as above.
      - Lamellae becoming orange when bruised; pileus 2.5–5 cm. broad. 55. *M. submaculata.*
      - Lamellae not becoming orange when bruised; pileus 4–12 cm. broad.
        - Pileus subcespitose; spores ellipsoid, 5–6 × 2–3 μ. 56. *M. eduriformis.*
        - Pileus usually cespitose; spores globose, 6 μ. 57. *M. lugubris.*
        - Pileus not cespitose; spores oblong, 7–8 × 3 μ. 58. *M. niveipes.*
  - Lamellae whitish, at length ochraceous; pileus grayish-tawny, 12–20 cm. broad. 59. *M. gravis.*
  - Lamellae cinereous, becoming dark-brown or blackish with age or on drying.
    - Spores oblong-ellipsoid, 7.5 × 4 μ; species known only from New York. 60. *M. fuliginea.*
    - Spores subglobose, 6–7.5 μ; species known only from Alabama. 61. *M. compressipes.*
  - Lamellae yellow; pileus only 12 mm. broad. 62. *M. inocybiformis.*
- Surface of pileus mostly some shade of gray or black.
  - Lamellae white, unchanging.
    - Stipe slender, less than 1 cm. thick. 4. *M. melaleuca.*
    - Stipe at least twice as thick.
      - Taste disagreeable; spores 5–7 × 2–3 μ. 63. *M. subargillacea.*
      - Taste pleasant; spores 7–9 × 5–6 μ. 64. *M. phaeopodia.*
  - Lamellae whitish or yellowish, slightly changing at times; stipe short.
    - Pileus avellaneous at the center, fading out to nearly white at the margin. 65. *M. Volkertii.*
    - Pileus grayish-brown to blackish-brown, margin concolorous; taste acrid. 66. *M. piperata.*
  - Lamellae whitish tinged with blue; pileus small, blackish-brown. 67. *M. semivestita.*
  - Lamellae avellaneous to umbrinous.
    - Lamellae avellaneous with a murinous tint; stipe about 5 mm. thick. 68. *M. praecox.*
    - Lamellae pale-avellaneous, becoming smoky-umbrinous; stipe about 10 mm. thick. 69. *M. subfuliginea.*
  - Surface variegated with grayish-tan, brownish, and pinkish-lilac areas; stipe white tinged with lilac; lamellae white to discolored. 70. *M. Tottenii.*
- Surface of pileus distinctly viscid and often conspicuously decorated.
  - Surface glabrous.
    - Pileus white, at times slightly yellowish at the center.
      - Lamellae white, scarcely changing on drying. 71. *M. resplendens.*
      - Lamellae pallid, becoming avellaneous or subfuliginous on drying. 72. *M. subresplendens.*
    - Pileus brownish-yellow at the center, with a broad, white margin. 73. *M. angustifolia.*
    - Pileus greenish-yellow; spores 5 × 4 μ. 74. *M. intermedia.*
    - Pileus pale-alutaceous; spores 3 μ. 75. *M. terrifera.*
    - Pileus pale-pink or rose-red, slightly yellowish at times. 76. *M. Russula.*
    - Pileus light-pinkish-brown to dark-brown; lamellae white stained with reddish. 77. *M. subtransmutans.*
    - Pileus yellowish-tawny, tawny-red, or reddish-brown.
      - Lamellae white, unchanging. 78. *M. viscosa.*
      - Lamellae whitish or yellowish, becoming dingy or reddish-spotted with age. 79. *M. transmutans.*
    - Pileus fuliginous or purplish-gray; stipe white. 80. *M. portentosa.*
  - Surface fibrillose or squamose.
    - Lamellae white, becoming discolored or spotted with age; pileus tawny-red to tawny-orange. 81. *M. auxantia.*
    - Lamellae sulfur-yellow, unchanging; pileus pale-yellowish tinged with red. 82. *M. equestris.*
    - Lamellae white or pale-yellow, unchanging; pileus not as above.
      - Pileus reaching 13 cm. broad, densely gregarious, yellowish-brown. 83. *M. rhinaria.*
      - Pileus 6–8 cm. broad, gray, with black fibrils arranged in lines. 84. *M. subterrea.*
      - Pileus reaching 4 cm. broad, usually with greenish tints.
        - Disk sooty-brown, very distinct from the broad, paler margin; stipe white. 85. *M. centralis.*
        - Disk not nearly so distinct as above; stipe mostly tinged with yellow or green.
          - Pileus conic or convex, usually lobed at the margin. 86. *M. subsejuncta.*
          - Pileus convex to expanded, margin entire. 87. *M. sejuncta.*

II. SPECIES OCCURRING ON THE PACIFIC COAST

- Surface of pileus dry and glabrous.
  - Sporophore with slender stipe and thin, variously colored pileus, resembling *Collybia.* 4. *M. melaleuca.*
  - Sporophore not as above.
    - Surface of pileus mostly white or whitish, rarely darker on the disk.
      - Pileus 2–5 cm. broad.
        - Pileus 2 cm. or less broad; stipe 4 cm. long, 2 mm. thick. 88. *M. tenuipes.*

Pileus and stipe considerably larger.
Lamellae very broad; spores 8.5 ×6 μ. 89. *M. platyphylla.*
Lamellae of medium breadth; spores 5–6 ×3–4 μ. 90. *M. pinicola.*
Pileus 6–8 cm. broad.
Surface entirely white. 91. *M. farinacea.*
Surface whitish with a caesious tint, black on the disk. 92. *M. sublurida.*
Pileus 10–14 cm. broad.
Sporophores gregarious; lamellae becoming cinereous on drying; spores ellipsoid. 93. *M. Olesonii.*
Sporophores densely cespitose; lamellae not changing as above; spores globose. 94. *M. submulticeps.*
Surface of pileus light-buff, 10–14 cm. broad; spores ellipsoid, 5–7 ×2.5–4.5 μ. 95. *M. rudericola.*
Surface of pileus rose-tinted, the ground-color being isabelline, avellaneous, or pale-brown.
Lamellae white, unchanging.
Pileus avellaneous with a rosy tint; lamellae broad, very white in dried specimens. 96. *M. bicolor.*
Pileus brownish-pink, with browner circular spots; lamellae narrow, yellowish-discolored in dried specimens. 97. *M. roseibrunnea.*
Lamellae pale-rosy-isabelline, becoming slightly purplish-spotted when bruised or on drying; sporophore having the odor of walnuts in dried specimens. 98. *M. nuciolens.*
Surface of pileus latericeous; stipe rose-colored. 99. *M. subvelata.*
Surface of pileus some shade of yellowish-brown.
Pileus fulvous at the center, pale-fulvous near the margin; spores globose, about 3.5 μ. 100. *M. collybiiformis.*
Pileus umbrinous, margin concolorous; spores ellipsoid, 7–8 ×4 μ. 101. *M. Harperi.*
Surface of pileus some shade of gray or avellaneous.
Pileus 4–8 cm. broad.
Surface minutely striate except at the center. 102. *M. striatella.*
Surface not at all striate.
Stipe long, slender, equal. 103. *M. subcinereiformis.*
Stipe shorter and thicker, about 7 ×2 cm.
Stipe much enlarged below. 104. *M. avellanea.*
Stipe subequal, not enlarged below. 105. *M. fumosella.*
Pileus larger, usually 8–15 cm. broad.
Pileus with a prominent umbo, stipe enlarged at the base; sporophores scattered. 106. *M. portolensis.*
Pileus without an umbo; stipe cylindric; sporophores growing in conspicuous circles. 107. *M. oreades.*
Surface of pileus viscid or rarely decorated with fibrils or scales.
Pileus white. 108. *M. secedifolia.*
Pileus sulfur-yellow. 109. *M. Yatesii.*
Pileus white stained with rusty-brown; growing in good soil. 110. *M. dryophila.*
Pileus ferruginous; growing in pure sand. 111. *M. arenicola.*
Pileus pale-yellow tinged with red; lamellae yellow. 82. *M. equestris.*
Pileus some shade of dark-red.
Lamellae and stipe white. 112. *M. subannulata.*
Lamellae and stipe pale-rosy-isabelline. 113. *M. subpessundata.*
Pileus fuliginous or purplish-gray.
Surface smooth; odor none. 114. *M. avellaneifolia.*
Surface radiate-lineate; odor strong. 80. *M. portentosa.*

III. SPECIES OCCURRING IN TROPICAL NORTH AMERICA

Lamellae white, pale-yellow, or dirty-brownish.
Pileus dingy-isabelline. 115. *M. subisabellina.*
Pileus purplish-lilac; stipe concolorous. 116. *M. dichropus.*
Pileus castaneous; stipe white. 117. *M. jalapensis.*
Lamellae reddish; pileus latericious.
Spores globose, 3–4 μ. 118. *M. jamaicensis.*
Spores ovoid, 9–12 ×4–7 μ: 119. *M. holoporphyra.*

1. **Melanoleuca alboflavida** (Peck) Murrill.

Agaricus alboflavidus Peck, Ann. Rep. N. Y. State Cab. **23**: 75. 1872.

Pileus fleshy, convex, becoming plane or slightly depressed, sometimes gibbous, 5–7.5 cm. broad; surface glabrous, smooth, moist in wet weather, white, sometimes tinged with yellow, margin at first involute; context white; lamellae narrow, crowded, thin, emarginate, white; spores ellipsoid, 7.5–8.7 ×4–5 μ; stipe very slender, equal, solid, fibrillose-striate, somewhat bulbous, whitish, 7.5–10 cm. long, 6–8 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Fields and thin woods.
DISTRIBUTION: New England and New York to the mountains of Virginia.

2. **Melanoleuca grammopodia** (Bull. & Vent.) Murrill.

Agaricus grammopodius Bull. & Vent. Champ. Fr. 1: 617. 1809.
Tricholoma grammopodium Quél. Champ. Jura Vosg. 46. 1872.

Pileus rather thin and tough, convex to umbonate-depressed, regular or somewhat lobed, growing in rings, 8–14 cm. broad; surface white, very smooth, glabrous, soft to the touch, slightly radiate-rimose at times, unicolorous or brownish on the umbo, margin entire or lobed, straight but incurved on drying; context thin, white, with pleasant taste and odor; lamellae emarginate, narrow, slightly ventricose, crowded, white; spores ellipsoid, smooth, hyaline, granular, chalk-white in mass, 7.5–8.5×4–5 μ; stipe subcylindric to slightly enlarged above and at times bulbous below, glabrous, avellaneous, longitudinally striate, twisted, solid or stuffed, fleshy, 7.5–13 cm. long, 8–15 mm. thick.

TYPE LOCALITY: France.
HABITAT: Grassy ground in fields or woods.
DISTRIBUTION: Northeastern United States.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 46, f. 1–7;* Bres. Funghi Mang. *pl. 32;* Bull. Herb. Fr. *pl. 548, 585, f. 1;* Hussey, Ill. Brit. Myc. 2: *pl. 41;* Hard, Mushrooms *f. 57.*

3. **Melanoleuca subcinerea** (Peck) Murrill.

Tricholoma subcinereum Peck, Bull. N. Y. State Mus. 131: 27. 1909.

Pileus thin, plane or centrally depressed, 4–6.5 cm. broad; surface subglabrous, whitish, pale-cinereous, or grayish-brown, the center sometimes a little darker and with a slight pruinose appearance; context white, odor strong, taste slightly and tardily acrid; lamellae thin, close, slightly sinuate, white; spores broadly ellipsoid, 7.5–9×6–7 μ; stipe central or eccentric, equal or slightly thickened toward the base, solid, silky-fibrillose, whitish or brown externally, brownish within, 4–7.5 cm. long, 6–14 mm. thick.

TYPE LOCALITY: Pittsford, Monroe County, New York.
HABITAT: On earth or buried wood in a cellar.
DISTRIBUTION: Massachusetts and New York.

4. **Melanoleuca melaleuca** (Pers.) Pat. Tax. Hymén. 159. 1900.

Agaricus melaleucus Pers. Syn. Fung. 355. 1801.
Tricholoma melaleucum Quél. Champ. Jura Vosg. 47. 1872.
Agaricus humilis Pers. Syn. Fung. 360. 1801.
? *Agaricus exscissus* Fries, Syst. Myc. 1: 114. 1821.
Tricholoma planiceps Peck, Bull. N. Y. State Mus. 157: 35. 1912.

Pileus thin, convex to plane, depressed around the small umbo, solitary, 3–6 cm. broad; surface glabrous, fuliginous to fawn-colored, margin incurved when young; context thin, sweet, edible, inodorous; lamellae very white, ventricose, emarginate, crowded; spores ovoid-ellipsoid, finely echinulate, hyaline, uninculeate, 7–9×5–6 μ; stipe elastic, variable in color and size, subglabrous, slender, often enlarged above or below, 4–10 cm. long.

TYPE LOCALITY: Europe.
HABITAT: Woods, fields, and lawns.
DISTRIBUTION: Throughout temperate regions.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 46, f. 8–15;* Cooke, Brit. Fungi *pl. 119 (119), 1127;* Fries, Ic. Hymen. *pl. 44;* Gill. Champ. Fr. *pl. 90 (682);* Mycologia 3: *pl. 49, f. 4.*

5. **Melanoleuca subacuta** (Peck) Murrill.

Tricholoma subacutum Peck, Ann. Rep. N. Y. State Mus. 42: 112. 1889.

Pileus at first ovoid or broadly conic, then convex and subacutely umbonate, 4–7.5 cm. broad; surface dry, silky and obscurely virgate with minute innate fibrils, whitish tinged with smoky-brown or bluish-gray, darker on the umbo; context white, taste acrid or peppery; lamellae rather close, slightly adnexed, white; spores broadly ellipsoid or subglobose, 6–7.5× 6–6.5 μ; stipe equal, stuffed or hollow, silky-fibrillose, white, 5–10 cm. long, 6–12 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: In spruce and balsam fir woods.
DISTRIBUTION: New York and New Brunswick.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 42: *pl. 1, f. 1–5;* Bull. N. Y. State Mus. 67: *pl. 82, f. 7–14.*

6. **Melanoleuca acris** (Peck) Murrill.

Tricholoma acris Peck, Bull. Torrey Club 24: 139. 1897.

Pileus fleshy, but rather thin, broadly convex to nearly plane, slightly depressed in the center, 4–6.5 cm. broad; surface dry, innately fibrillose, whitish or pale-gray, margin wavy; context white or whitish, taste acrid; lamellae close, adnexed, subventricose, white; spores subglobose, 5–6×4–5 μ; stipe equal or slightly tapering downward, short, slightly fibrillose, stuffed or hollow, white, 2.5–5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Worcester, Massachusetts.
HABITAT: Thin deciduous woods.
DISTRIBUTION: New England to Virginia and west to the Rocky Mountains.

7. **Melanoleuca albissima** (Peck) Murrill.

Agaricus (Clitocybe) albissimus Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 45. 1873.
Agaricus (Tricholoma) alboides Peck, Ann. Rep. N. Y. State Mus. **32**: 25. 1880.
Agaricus (Clitocybe) patuloides Peck, Ann. Rep. N. Y. State Mus. **32**: 25. 1880.
Clitocybe subsimilis Peck, Ann. Rep. N. Y. State Mus. **41**: 61. 1888.
Tricholoma nobile Peck, Ann. Rep. N. Y. State Mus. **42**: 113. 1889.
Clitocybe piceina Peck, Bull. Torrey Club **31**: 178. 1904.

Pileus fleshy, tough, convex, becoming plane or depressed, obtuse, slender or robust, solitary to cespitose, 5–10 cm. broad; surface very dry, smooth, glabrous, white, sometimes yellowish and slightly pruinose on the disk, rarely wholly yellowish, margin at first involute; context white, odor often decided, taste acrid or bitter; lamellae emarginate with a decurrent tooth, crowded to subdistant, distinct, whitish, yellowish when bruised; spores subglobose to broadly ellipsoid, minutely asperulate, hyaline, 5–7×4–6 μ; stipe solid, elastic, equal or tapering upward, externally fibrous, obsoletely pruinose at the apex, often tomentose at the base, white, 5–10 cm. long, 8–16 mm. thick.

TYPE LOCALITY: Croghan, New York.
HABITAT: In leaf-mold in coniferous or mixed woods.
DISTRIBUTION: Canada to Virginia and west to Michigan.
ILLUSTRATION: Hard, Mushrooms *f. 52*.
EXSICCATI: Shear, N. Y. Fungi *5*.

8. **Melanoleuca luteomaculans** (Atk.) Murrill.

Tricholoma luteomaculans Atk. Ann. Myc. **7**: 376. 1909.

Pileus convex to expanded, depressed, somewhat undulate, solitary, 5–7 cm. broad; surface white tinged with yellow, changing to sulfur-yellow when bruised, margin with short, distant, radiating furrows; context firm, taste rather unpleasant; lamellae emarginate, crowded, white becoming dingy; spores subglobose, smooth, granular, 4–5×3.5–4.5 μ; stipe enlarged below, whitish tinged with yellow, floccose-scaly with sordid-yellow scales, 4–5 cm. long, about 1 cm. thick.

TYPE LOCALITY: Enfield Gorge, Ithaca, New York.
HABITAT: On the ground among leaves.
DISTRIBUTION: New York and North Carolina.

9. **Melanoleuca silvatica** (Peck) Murrill.

Tricholoma silvaticum Peck, Ann. Rep. N. Y. State Mus. **42**: 113. 1889.

Pileus convex or nearly plane, subumbonate, small, well-formed, 2.5–4 cm. broad; surface dry, glabrous, whitish; margin decurved; context thin, white, with farinaceous taste but no odor; lamellae broad, ventricose, subdistant, adnexed, white, deeply sinuate; spores large, ellipsoid, 11–12.5×7.5 μ; stipe equal or slightly tapering upward, glabrous or obscurely fibrillose, slightly mealy or pruinose at the apex, solid, firm, 2.5–5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: Among mosses or fallen leaves in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **42**: *pl. 2, f. 16–19;* Bull. N. Y. State Mus. 67: *pl. 82, f. 1–6.*

10. **Melanoleuca pallida** (Peck) Murrill.

Tricholoma pallidum Peck, Bull. Torrey Club 24: 139. 1897.

Pileus fleshy, thick at the center, convex or nearly plane, obtuse, 2.5–6.5 cm. broad; surface glabrous, sometimes obscurely spotted on the disk with thin, appressed, brownish squamules, somewhat shining, whitish tinged with yellow or brownish-yellow, context white, sometimes slowly assuming a faint pinkish hue when bruised, taste mild; lamellae broad, subdistant, rounded behind or adnexed, often eroded on the edge, white; spores ellipsoid, 5–6×4 μ; stipe equal or slightly thickened at the base, glabrous, white, 2.5–5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Worcester, Massachusetts.
HABITAT: Thin deciduous woods.
DISTRIBUTION: Massachusetts, New York, and Colorado.

11. **Melanoleuca leucocephaloides** (Peck) Murrill.

Tricholoma leucocephaloides Peck, Ann. Rep. N. Y. State Mus. **49**: 16. 1897.

Pileus thin, convex, obtuse or umbonate, 4–6 cm. broad; surface yellowish or grayish-brown when moist, white or whitish when dry, glabrous, hygrophanous; context white, farinaceous; lamellae adnate or slightly emarginate, moderately close, whitish; spores ellipsoid, 5–6×4 μ; stipe equal or tapering upward, glabrous, sometimes mealy at the apex, whitish, solid, 4–6 cm. long, 5–8 mm. thick.

TYPE LOCALITY: Delmar, New York.
HABITAT: Under pines or balsam firs.
DISTRIBUTION: New York.

12. **Melanoleuca subacida** Murrill, sp. nov.

Pileus convex to expanded, gregarious, reaching 5–6 cm. broad; surface smooth, glabrous, subviscid, white, margin incurved, entire; context white, with a pleasant taste and the odor of sour dough; lamellae mostly entire, with a few short ones inserted near the margin, broad, sinuate, ventricose, subcrowded, pure-white, unchanging; spores subglobose, smooth, hyaline, granular, 5–6×4–5 μ; stipe tapering downward, smooth, glabrous, white, spongy within, 5 cm. long, 1 cm. thick.

Type collected on the ground in pine woods near Auburn, Alabama, December 15, 1900, *Mrs. F. S. Earle.*

DISTRIBUTION: Known only from the type locality.

13. **Melanoleuca unifacta** (Peck) Murrill.

Tricholoma unifactum Peck, Bull. N. Y. State Mus. 105: 36. 1906.

Pileus fleshy but thin, convex, often irregular, sometimes eccentric because of its closely cespitose mode of growth, 2.5–5 cm. broad; surface whitish; context tender, whitish, taste mild, odor not decided; lamellae thin, narrow, close, rounded behind, slightly adnexed, sometimes forked near the base, white; spores hyaline, subglobose, 4–5 μ; stipes equal or thicker at the base, solid, fibrous, white, united at the base in a large fleshy mass, 2.5–5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Horicon, Warren County, New York.
HABITAT: Under hemlock trees.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Bull. N. Y. State Mus. 105: *pl. 94.*

14. **Melanoleuca Kauffmanii** Murrill, sp. nov.

Pileus small, thin, convex to nearly plane, cespitose, 2–5 cm. broad; surface smooth, subglabrous, minutely floccose on the disk, pale-brownish-cinereous with a tinge of drab, darker at the center; margin thin, regular, concolorous, incurved when young or on drying; context whitish, drying easily, taste mild; lamellae somewhat decurrent, at length emarginate, plane, very crowded and very narrow, pallid to drab-colored, scarcely changing when bruised, isabelline in dried specimens; spores ellipsoid, smooth, hyaline, 5–6×2–3 μ; stipe rather slender, curved and attenuate above, fibrillose, whitish, tinged like the pileus, solid, 4–6 cm. long, 4–6 mm. thick.

Type collected in soil mixed with leaf-mold at Whitmore, Michigan, September 14, 1907, *C. H. Kauffman.*

DISTRIBUTION: Known only from the type locality.

15. **Melanoleuca serratifolia** (Peck) Murrill.

Tricholoma serratifolium Peck, Ann. Rep. N. Y. State Mus. **46**: 102. 1894.

Pileus fleshy, firm, often irregular, convex to subplane, 5–10 cm. broad; surface white, light-brown or yellowish-brown at the center, dry, silky or floccose-squamulose; context white or whitish, taste at first mild becoming acrid; lamellae adnexed, crowded, broad, the edges serrate or erose, white; spores ellipsoid or subglobose, 5–6×5 μ; stipe short, stout, white, solid, 2.5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Shokan, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York.

16. **Melanoleuca lateraria** (Peck) Murrill.

Agaricus (*Tricholoma*) *laterarius* Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 43. 1873.

Pileus convex or nearly plane, sometimes slightly depressed in the center, gregarious to cespitose, 5–12 cm. broad; surface dry, pruinose, white to rosy-isabelline, the disk often tinged with brick-red or brown; margin incurved when young, then marked with slight, subdistant, short, radiating ridges; context white, odor farinaceous, taste bitter; lamellae plane in mass, narrow, crowded, emarginate, decurrent in slight lines, white; spores globose, 4–6 μ; stipe nearly equal, solid, white, 5–7.5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Worcester, New York.
HABITAT: On rotten wood or leaf-mold in woods.
DISTRIBUTION: Northeastern United States.
ILLUSTRATION: Hard, Mushrooms *f. 47*.

17. **Melanoleuca subsaponacea** (Peck) Murrill.

Tricholoma subsaponaceum Peck, Bull. N. Y. State Mus. 157: 35. 1912.

Pileus fleshy, compact, flexible, convex or nearly plane, 6–14 cm. broad; surface glabrous, whitish, creamy-white, or pallid on the margin, smoky-brown or alutaceous in the center, sometimes marked with a row of pallid or watery spots near the margin, assuming yellow or saffron hues when cut or bruised; context white, becoming concolorous when cut or bruised, odor pleasant like anise, taste farinaceous; lamellae broad, close, adnexed or nearly free, whitish; spores broadly ellipsoid or subglobose, 5–6×4–5 μ; stipe variable, equal or enlarged at the top or at the base, sometimes compressed, often abruptly narrowed at the base and radicating, silky-fibrillose, solid becoming hollow with age, whitish, becoming concolorous when cut or bruised, 4–5 cm. long, 1.5–3 cm. thick.

TYPE LOCALITY: Rockville, Indiana.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: Massachusetts, New York, and Indiana.

18. **Melanoleuca Robinsoniae** Murrill, sp. nov.

Pileus fleshy, convex to subexpanded, somewhat irregular, cespitose, 4–7 cm. broad; surface smooth, glabrous, dry, white or yellowish, slightly darker at the center, isabelline to fulvous on drying, margin thin, concolorous, inflexed when young; context firm, white, rather thick at the center; lamellae sinuate with decurrent lines, of medium breadth and distance, firm, white; spores ellipsoid, smooth, hyaline, about 7×5 μ; stipe short, rather tough, much enlarged at the base, smooth, white, glabrous, 3–7 cm. long, 1–2.5 cm. thick.

Type collected on the ground among herbaceous plants at Yellowstone Lake, Wyoming, 2300 m. elevation, August 9, 1912, *Winifred J. Robinson 12*.
DISTRIBUTION: Known only from the type locality.

19. **Melanoleuca radicata** (Peck) Murrill.

Tricholoma radicatum Peck, Bull. N. Y. State Mus. 67: 22. 1903.

Pileus fleshy, firm, umbraculiform or broadly convex, 5–8 cm. broad; surface pale-grayish-brown, darker and tinged with reddish-brown in the center, dry, minutely silky-fibrillose or obscurely fibrillose-squamulose, somewhat shining, cuticle separable, margin thin; context white, edible, taste disagreeable, losing its unpleasant flavor on cooking; lamellae emarginate,

adnexed, having a decurrent tooth, close, thin, white; spores broadly ellipsoid, 5–6×4–5 μ; stipe firm, nearly equal, distinctly radicate, slightly fibrillose, white, fistulose, 4–10 cm. long, 6–10 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: Under coniferous trees.
DISTRIBUTION: New York and Massachusetts.
ILLUSTRATIONS: Bull. N. Y. State Mus. 67: *pl. 82, f. 15–19.*

20. **Melanoleuca striatifolia** (Peck) Murrill.

Agaricus (*Tricholoma*) *striatifolius* Peck, Ann. Rep. N. Y. State Mus. **30**: 37. 1878.

Pileus convex or nearly plane, 5–7.5 cm. broad; surface dry, subglabrous, somewhat shining, often obscurely dotted or squamulose with innate fibrils, grayish or grayish-brown, sometimes tinged with red; context white, with peculiar odor; lamellae rather close, rounded behind, transversely striate or venose, white; spores subglobose or broadly ellipsoid, 4–5 μ; stipe slightly thickened at the base, hollow, chalky-white, 2.5–5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Mechanicsville, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York, Massachusetts, and North Carolina.

21. **Melanoleuca impolitoides** (Peck) Murrill.

Agaricus (*Tricholoma*) *impolitoides* Peck, Ann. Rep. N. Y. State Mus. **32**: 25. 1880.

Pileus convex to expanded, obtuse, 5–7 cm. broad; surface dry, fibrillose-tomentose, whitish, the disk usually brownish and at length squamose, sometimes distantly striate on the margin; context white, taste farinaceous; lamellae emarginate, close, whitish; spores ellipsoid, 6.5×5 μ; stipe equal, slightly fibrillose, white, solid, 7–10 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Gansevoort, New York.
HABITAT: Ground in woods.
DISTRIBUTION: Known only from the type locality.

22. **Melanoleuca fumidella** (Peck) Murrill.

Agaricus (*Tricholoma*) *fumidellus* Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 44. 1873.

Pileus convex, then expanded, subumbonate, 2.5–5 cm. broad; surface smooth, moist, at times rimose-areolate, dingy-white or clay-color clouded with brown, becoming paler when dried, disk darker than margin; lamellae close, subventricose, whitish; spores 4.5×3.5 μ; stipe equal, smooth, solid, splitting readily, whitish, 5–7.5 cm. long, 4–6 mm. thick.

TYPE LOCALITY: New Scotland, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York, Massachusetts, Connecticut, New Jersey, and North Carolina.

23. **Melanoleuca terraeolens** (Peck) Murrill.

Agaricus (*Tricholoma*) *terraeolens* Peck, Ann. Rep. N. Y. State Mus. **38**: 84. 1885.

Pileus thin, convex or nearly plane, 1–1.5 cm. broad; surface slightly silky-fibrillose, whitish with a brownish or grayish-brown, slightly prominent disk; context with a strong and unpleasant odor and taste; lamellae subdistant, emarginate, white; spores subglobose or broadly ellipsoid, 6–7.5×5–6.5 μ; stipe equal, slightly silky, shining, stuffed or hollow, white, 2.5–4 cm. long, about 4 mm. thick.

TYPE LOCALITY: South Ballston, New York.
HABITAT: Under ground-hemlock.
DISTRIBUTION: Known only from the type locality.

24. **Melanoleuca infantilis** (Peck) Murrill.

Tricholoma infantile Peck; Bull. N. Y. State Mus. 1^2: 5. 1887.

Pileus thin, convex or nearly plane, 1–2.5 cm. broad; surface smooth, minutely silky, moist in wet weather, reddish-gray, margin at first incurved and whitish; often irregular with age; lamellae subdistant, plane or slightly ventricose, often eroded on the edge, whitish; spores

broadly ellipsoid, often with a shining nucleus, 7.5–8.7×5–6 μ; stipe short, equal or tapering upward, hollow, slightly silky, concolorous or a little paler, 2.5–4 cm. long, 2–4 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Gravelly soil in fields.
DISTRIBUTION: Known only from the type locality.

25. **Melanoleuca magna** (Banning & Peck) Murrill.

Tricholoma magnum Banning & Peck; Peck, Ann. Rep. N. Y. State Mus. 44: 179. 1892.

Pileus fleshy, hemispheric to expanded, 15 cm. broad; surface smooth, silky, cream-colored; context white, firm; lamellae white then pale-salmon or cream-colored, adnate, emarginate, not crowded; spores not present; stipe short, solid then hollow, base attenuate.

TYPE LOCALITY: Baltimore, Maryland.
DISTRIBUTION: Known only from the type locality.

26. **Melanoleuca praemagna** Murrill, sp. nov.

Pileus large and fleshy, convex to plane, becoming deeply fissured with age or on drying, gregarious, reaching 12–20 cm. broad; surface dry, smooth, glabrous, white, margin involute and minutely downy when young, becoming expanded and glabrous; context thick, white; lamellae sinuate-adnexed, often with a decurrent tooth, broad, ventricose, crowded, white, becoming dirty-yellowish or brownish on drying; spores ellipsoid, smooth, hyaline, pure-white in mass, 6–7×3–4 μ; stipe very short, thick and bulbous, smooth, glabrous, white, reaching 5–6 cm. long and 4–5 cm. thick, the bulb being nearly twice this thickness.

Type collected on the crumbling walls of an old sod-house in Saskatchewan, Canada, September 6, 1913, *L. H. Pennington*. Also collected on high land under sagebrush, near Gunnison, Colorado, August 24, 1899, *E. Bartholomew 2611½*.
DISTRIBUTION: Saskatchewan and Colorado.

27. **Melanoleuca trentonensis** (Peck) Murrill.

Agaricus (*Tricholoma*) *trentonense* Peck, Ann. Rep. N. Y. State Mus. **24**: 60. 1872.

Pileus thin, convex or nearly plane, often irregular, gregarious or subcespitose, 2.5–5 cm. broad; surface glabrous or subvirgate, hygrophanous, slightly striatulate on the margin when moist, dingy-white, the disk generally brown; lamellae very narrow, crowded, slightly emarginate, white inclining to yellowish; spores ellipsoid, pointed at one end, smooth, hyaline, 5–7×3–4 μ; stipe short, equal, solid, slightly striate, white, 2.5–4 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Trenton Falls, New York.
HABITAT: Soil and rotten wood in woods.
DISTRIBUTION: New York.

28. **Melanoleuca fumescens** (Peck) Murrill.

Agaricus (*Tricholoma*) *fumescens* Peck, Ann. Rep. N. Y. State Mus. **31**: 32. 1879.

Pileus convex or expanded, 2.5 cm. broad; surface dry, clothed with a very minute appressed tomentum, whitish; lamellae narrow, crowded, rounded behind, whitish or pale-cream-colored, changing to smoky-blue or blackish when bruised or on drying; spores oblong-ellipsoid, 5–6.5 μ long; stipe short, cylindric, whitish, 2.5–4 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Copake, New York.
HABITAT: Ground in woods.
DISTRIBUTION: New York.
ILLUSTRATION: Hard, Mushrooms *f. 54*.

29. **Melanoleuca lata** (Peck) Murrill.

Tricholoma latum Peck, Bull. N. Y. State Mus. 167: 31. 1913.

Pileus fleshy, firm but flexible, broadly convex or nearly plane, gregarious, reaching 5–10 cm. broad; surface moist, glabrous, white or whitish; context white, taste diagreeable; lamellae plane or slightly arcuate in mass, narrow, close, rounded behind, adnexed, white or whitish, becoming dingy or tinged with reddish-brown when old; spores oblong or subfusiform, 10–12× 3.5–4 μ; stipe short, nearly equal, solid or stuffed, slightly pruinose at the top, more or less whitish-tomentose at the base, colored like the pileus, 2.5–5 cm. long, 1.5–2 cm. thick.

TYPE LOCALITY: Vaughns, New York.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.

35. **Melanoleuca Davisiae** (Peck) Murrill.

Tricholoma Davisiae Peck, Bull. Torrey Club 27: 611. 1900.

Pileus fleshy, thin except in the center, very fragile, at first rounded, becoming convex or nearly plane, acutely or bluntly umbonate, 4–10 cm. broad; surface dry, pruinose or slightly pulverulent, floccose-squamulose toward the margin, bright-yellow when young and often tinged with red or green and showing changeable or iridescent hues, becoming paler with age and assuming pinkish or salmon tints, brown or purplish-brown in the center, margin thin, involute, often split; context white, taste farinaceous, then disagreeable; lamellae broad, subdistant, rounded behind and somewhat ventricose, adnexed, whitish becoming tinged with salmon, especially on the edge; spores broadly ellipsoid or subglobose, 5–6×5 μ; stipe nearly equal, straight or curved, stuffed or slightly hollow, fibrous, penetrating the earth deeply, white externally and within, 5–10 cm. long, 8–13 mm. thick.

TYPE LOCALITY: Falmouth, Maine.
HABITAT: Among fallen leaves in pine woods.
DISTRIBUTION: Maine.

36. **Melanoleuca unakensis** Murrill, sp. nov.

Pileus convex to nearly plane, gibbous, gregarious to subcespitose, reaching 5–8 cm. broad; surface moist, smooth, glabrous, isabelline, fulvous at the center and fading toward the margin, which is entire and sharply incurved on drying; context white, fleshy, very rigid when dry; lamellae sinuate-adnexed, plane, crowded, firm, white tinged with rosy-isabelline; spores globose, smooth, hyaline, 4–6 μ; stipe very long, equal, smooth, subglabrous above, tomentose below, white at the apex, changing to grayish or glaucous on drying, cream-colored below, not changing, solid or spongy within, very rigid when dry, often twisted, about 10–13 cm. long, 1 cm. thick.

Type collected on a dead pine log in mixed woods at Unaka Springs, Tennessee, August 18–24, 1904, *W. A. Murrill 965*. What appears to be the same species collected on dead wood at Rochdale, Massachusetts, September 17, 1911, *E. D. Clark*.

DISTRIBUTION: Tennessee and probably Massachusetts.

37. **Melanoleuca odora** (Peck) Murrill.

Tricholoma odorum Peck, Bull. Torrey Club 25: 321. 1898.

Pileus fleshy, convex, becoming nearly plane or slightly depressed, subumbonate, 2.5–5 cm. broad; surface glabrous, shining when young, soft like kid, yellowish or pale-tan-colored; context yellow, flavor at first nutty then farinaceous, odor strong, jessamine-like; lamellae broad, rounded behind, adnexed, easily separating from the stem, thick, white or tinged with pink; spores ellipsoid, 7.5–10×5–6 μ; stipe equal, sometimes slightly bulbous, stuffed, silky-fibrillose, concolorous, but pale-yellow toward the base and white and pruinose at the top, 5–7.5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Tacoma Park, District of Columbia.
HABITAT: Among fallen leaves in moist places in woods.
DISTRIBUTION: Known only from the type locality.

38. **Melanoleuca Thompsoniana** Murrill.

Agaricus (*Tricholoma*) *flavescens* Peck, Bull. Buffalo Soc. Nat. Sci. 1: 42. 1873. Not *A. flavescens* Wallr. 1833.

Pileus large and attractive, convex to plane with a broad umbo, sometimes splitting with age, gregarious, reaching 10 cm. broad; surface dry, glabrous, somewhat rimose, flavous over the whole surface when young, becoming dark-luteous at the center and flavous or cream-colored toward the margin; context thin, white or yellowish; lamellae adnate, becoming slightly sinuate and seceding, rather crowded and narrow, lemon-yellow when young, becoming flavo-luteous with age, brownish on drying; spores subglobose, smooth, hyaline, 5–7 μ; stipe long, equal, longitudinally striate, glabrous, lemon-yellow, fleshy, firm, 14 cm. long, 2–2.5 cm. thick.

TYPE LOCALITY: Bethlehem, New York.
HABITAT: On and about old pine stumps.
DISTRIBUTION: New York, Massachusetts, and North Carolina.

30. **Melanoleuca Memmingeri** Murrill, sp. nov.

Pileus convex, regular, gregarious, 5–10 cm. broad; surface dry, subtomentose, white, light-tan to brownish at the center, becoming glabrous in spots and retaining the impression of finger marks, margin thin, entire; context fleshy, rather thin, with earthy odor and taste, changing quickly to bright-yellow and finally to brown when cut or bruised; lamellae sinuate, very close, rather narrow, fragile, apparently white or light-yellow when fresh, becoming fulvous or bay with age; spores broadly ellipsoid, smooth, hyaline, granular, $6\times5\ \mu$; stipe long, tapering upward, enlarged or subbulbous below, densely tomentose, dry, white, becoming fulvous when bruised, solid, fragile, about 10 cm. long and 1–2 cm. thick, being nearly twice that thickness at the base.

Type collected in leaf-mold in deciduous woods at Flat Rock, North Carolina, 1911, *E. R. Memminger*.

DISTRIBUTION: Known only from the type locality.

31. **Melanoleuca subdura** (Banning & Peck) Murrill.

Tricholoma subdurum Banning & Peck; Peck, Ann. Rep. N. Y. State Mus. **44**: 179. 1892.

Pileus hemispheric to expanded, about the size and shape of *Tricholoma personatum;* surface white, becoming dark with age, margin undulate; context firm, tenaceous; lamellae forking, adnexed, crowded, yellow; spores not examined; stipe stout, attenuate above, white, enlarged at the base, solid, 6.5 cm. long.

TYPE LOCALITY: Druid Hill Park, Baltimore, Maryland.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.

32. **Melanoleuca edura** (Banning & Peck) Murrill.

Tricholoma edurum Banning & Peck; Peck, Ann. Rep. N. Y. State Mus. **44**: 180. 1892.

Pileus at first convex, obtuse, thick, fleshy, expanded with age, with a slight central depression, gregarious, 10–12.5 cm. broad; surface undulating, hygrophanous, at first dingy-white or alutaceous, darker at the center, cuticle thin, easily separable, margin at first involute, expanding unequally, sometimes lobed; context mild, odor pleasant but powerful, resembling that of the common mushroom; lamellae white or cream-colored, adnexed, not crowded except at the margin, easily separable from the context; spores subglobose, hyaline, 6–7.5 μ; stipe white, firm, thickened at the base, tapering upward, sometimes nearly equal, at first solid, then stuffed, 7.5–10 cm. long.

TYPE LOCALITY: Baltimore, Maryland.
HABITAT: Among leaves in woods.
DISTRIBUTION: Known only from the type locality.

33. **Melanoleuca fumosolutea** (Peck) Murrill.

Agaricus (*Tricholoma*) *fumosoluteus* Peck, Ann. Rep. N. Y. State Mus. **27**: 92. 1874.

Pileus fleshy, convex or nearly plane, sometimes gregarious, 5–7.5 cm. broad; surface moist, glabrous, smoky-yellow; context white, tinged with yellow under the cuticle, taste farinaceous; lamellae broad, close, rounded behind and deeply emarginate, white; spores subglobose, 4.5–6 μ; stipe stout, glabrous, hollow, white, 7.5–10 cm. long, 8–12 mm. thick.

TYPE LOCALITY: Forestburgh, Sullivan County, New York.
HABITAT: Ground in woods.
DISTRIBUTION: New York and Maine.

34. **Melanoleuca sublutea** (Peck) Murrill.

Tricholoma subluteum Peck. Bull. N. Y. State Mus. 75: 21. 1904.

Pileus broadly campanulate becoming convex, umbonate, 5–10 cm. broad; surface obscurely fibrillose, yellow; context white; lamellae close, emarginate, adnexed, white; spores globose, 5–6 μ; stipe equal or slightly tapering upward, solid, fibrillose, yellow, whitish at the pointed base, white within, 7.5–10 cm. long, 8–16 mm. thick.

TYPE LOCALITY: Lake Pleasant, New York.
HABITAT: Under coniferous trees.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Bull. N. Y. State Mus. 75: *pl. 0, f. 26–29*.

39. **Melanoleuca aromatica** Murrill, sp. nov.

Pileus spongy-fleshy, convex to expanded, obtuse or slightly umbonate, 4–10 cm. broad; surface uniformly buff with a grayish tint, minutely innately floccose-tomentose, moist, smooth, not hygrophanous, margin thin, concolorous, incurved; context white, moist, thin, taste farinaceous, odor in dried specimens strongly aromatic and resembling that of *Lactaria camphorata;* lamellae adnexed, slightly emarginate, plane or becoming subventricose, subcrowded, of medium breadth, dingy-white, distinctly yellowish with age; spores ellipsoid, smooth, hyaline, 6–7 × 2.5–3.5 μ; stipe straight or curved at the base, cylindric above, much enlarged below, pallid, fibrillose, pruinose at the apex, densely mycelioid-tomentose at the base, spongy-stuffed to hollow, about 10 cm. long, 5–10 mm. thick above, 2–3 cm. thick below.

Type collected on the ground among decaying leaves in woods in Cascade Glen, near Ann Arbor, Michigan, October 11, 1907, *C. H. Kauffman.*

DISTRIBUTION: Known only fron the type locality.

40. **Melanoleuca venenata** (Atk.) Murrill.

Tricholoma venenatum Atk. Bot. Gaz. **46**: 461. 1908.

Pileus fleshy, convex to plane or subrepand, subumbonate, 4–7 cm. broad; surface moist, not viscid, minutely fibrous-scaly, pale-buff to pale-clay-colored, the scales possessing the darker color, under a lens some of them appearing nearly black, subtomentose in the center, margin thin; context white with a dull-clay-colored tint and stains, poisonous, odor and taste mild; lamellae adnexed, broadly sinuate, subdistant, whitish, thin, dull-clay-colored, especially when bruised; spores ovoid to broadly ellipsoid, hyaline, smooth, 5–7 × 3.5–5 μ; stipe subbulbous, fibrous, striate, solid, sordid-white, becoming dull-clay-colored when handled, 4–8 cm. long, 1–1.5 cm. thick.

TYPE LOCALITY: Detroit, Michigan.
HABITAT: Open grassy woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Bot. Gaz. **46**: *f. 1, 2.*

41. **Melanoleuca odorifera** Murrill, sp. nov.

Pileus thick, fleshy, convex, gregarious, 3–4 cm. broad; surface dry, smooth, innately fibrillose, pale-honey-yellow, fading with age, unicolorous, margin involute, concolorous; context rather thick, concolorous, of mild flavor, odor strong, suggesting chlorin and sour dough; lamellae plane, rather broad and thick, sinuate, subcrowded, colored like the pileus; spores ellipsoid, smooth, hyaline, 8–9 × 5.5–6.5 μ; stipe subequal, slightly larger below, concolorous, glabrous, whitish-mycelioid at the base, thick, hollow, 5–7 cm. long, 1 cm. thick.

Type collected in humus in moist woods at Redding, Connecticut, August 26, 1902, *F. S. Earle 1234.*

DISTRIBUTION: Known only from the type locality.

42. **Melanoleuca Naucoria** Murrill.

Agaricus (*Tricholoma*) *fallax* Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 44. 1873. Not *A. fallax* Lasch, 1829.

Pileus firm, convex or nearly plane, rarely centrally depressed, 0.5–1.5 cm. broad; surface moist in wet weather, glabrous, dull-saffron, subochraceous, or reddish-yellow; context yellowish when dry; lamellae narrow, close, tapering outwardly, rounded behind, yellow; spores minute, ellipsoid, 3–4 μ long; stipe slender, glabrous, slightly tomentose at the base, equal or tapering downward, stuffed or hollow, concolorous above, 2.5 cm. long, 2–4 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: Ground under spruce and balsam trees.
DISTRIBUTION: New York, Vermont, and Maine.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **25**: *pl. 1, f. 5–8.*

43. **Melanoleuca chrysenteroides** (Peck) Murrill.

Agaricus (*Tricholoma*) *chrysenteroides* Peck, Ann. Rep. N. Y. State Mus. **24**: 60. 1872.

Pileus fleshy, convex or plane, not at all umbonate, firm, 2.5–5 cm. broad; surface dry, glabrous or slightly silky, pale-yellow or buff, becoming dingy with age, margin sometimes

reflexed; context pale-yellow, taste and odor farinaceous; lamellae rather close, emarginate, yellowish, becoming dingy or pallid with age, marked with transverse veinlets along the upper edge, the interspaces venose; spores ellipsoid, 7.5–10×5–6 μ; stipe equal, firm, solid, glabrous, fibrous-striate, yellowish within and without, 5–7.5 cm. long, 6–8 mm. thick.

TYPE LOCALITY: Greig, New York.
HABITAT: Ground in woods.
DISTRIBUTION: New York.

44. **Melanoleuca thujina** (Peck) Murrill.

Agaricus (*Tricholoma*) *thujinus* Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 44. 1873.

Pileus convex or centrally depressed, 2.5–5 cm. broad; surface glabrous, hygrophanous, pale-alutaceous, margin generally irregular, wavy or lobed; lamellae crowded, thin, abruptly emarginate, alutaceous; spores minute, about 4 × 2 μ; stipe slightly thickened at the top, glabrous, hollow, concolorous, whitish-villose at the base, 2.5–4 cm. broad, 4–6 mm. thick.

TYPE LOCALITY: Memphis, New York.
HABITAT: Under white cedar trees.
DISTRIBUTION: Known only from the type locality.

45. **Melanoleuca alabamensis** Murrill, sp. nov.

Pileus irregularly convex, at length subexpanded, solitary, reaching 5–6 cm. broad; surface dry or slightly viscid, yellowish-gray or subolivaceous, dusky on the disk, where it is often ornamented with blackish fibrils, margin entire, incurved on drying; context firm, dirty-white, mild or slightly unpleasant, without distinct odor; lamellae deeply sinuate, subcrowded, broad, somewhat ventricose, dull-yellowish-white, the edges undulate or uneven; spores ellipsoid, smooth, hyaline, 6–7×4–5 μ; stipe subcylindric, fibrous or somewhat scaly, sordid-white, spongy or solid within, 5–8 cm. long, 1–1.5 cm. thick.

Type collected on the ground in pine woods near Auburn, Alabama, December 26, 1900, *Mrs. F. S. Earle*. Also collected in the same locality, December 15, 1900, and January 5, 1901, *Mrs. F. S. Earle*.

DISTRIBUTION: Alabama.

46. **Melanoleuca longipes** Murrill, sp. nov.

Pileus conic to convex and at length expanded, the umbo disappearing with age, gregarious, reaching 8–10 cm. broad; surface smooth, glabrous, polished, pallid or glaucous to pale-olive, becoming brownish or blackish when bruised, margin entire, even, concolorous; context white, mild, odor not characteristic; lamellae sinuate, distant, ventricose, fragile, white, becoming grayish or brownish-discolored with age or when bruised; spores ellipsoid, smooth, hyaline, 5–6×2–3 μ; stipe very long, subequal, usually curved or twisted, longitudinally striate, glabrous, white, hollow, reaching 10–15 cm. long, 1–2 cm. thick.

Type collected on the ground under balsam fir trees on the grounds of the Lake Placid Club, Adirondack Mountains, New York, October 3–14, 1912, *W. A. & Edna L. Murrill 1161*.

DISTRIBUTION: New York and Massachusetts.

47. **Melanoleuca viriditincta** (Peck) Murrill.

Agaricus (*Tricholoma*) *virescens* Peck, Ann. Rep. N. Y. State Mus. **25**: 74. 1873. Not *A. virescens* Schaeff. 1774.
Agaricus viriditinctus Peck, Ann. Rep. N. Y. State Mus. **33**: 36. 1883.
Tricholoma viriditinctum Sacc. Syll. Fung. **5**: 128. 1887.

Pileus convex or nearly plane, sometimes centrally depressed, 7.5–12.5 cm. broad; surface moist, glabrous, dingy-green, margin sometimes wavy or lobed; lamellae close, white, gradually narrowed toward the outer extremity, rounded or slightly emarginate behind, white; spores broadly ellipsoid, 5×3.7 μ; stipe subequal, stuffed or hollow, thick but fragile, whitish, sometimes tinged with green, 7.5–10 cm. long, 12–24 mm. thick.

TYPE LOCALITY: North Elba, New York.
HABITAT: On mossy ground in open woods.
DISTRIBUTION: Known only from the type locality.

48. **Melanoleuca paeonia** (Fries) Murrill.

Agaricus paeonius Fries, Epicr. Myc. 42. 1838.
Agaricus carneus Pers. Syn. Fung. 340. 1801. Not *A. carneus* Schaeff. 1774.
Tricholoma carneum Gill. Champ. Fr. 115. 1876.

Pileus subfleshy, convex to plane, 2–5 cm. broad; surface flesh-colored, silky to glabrous, margin floccose; lamellae rounded, free, ventricose, white; spores ellipsoid, 2.5×1.7 μ; stipe soft, fragile, subpulverulent at the apex, persistently red, hollow, 2–5 cm. long.

TYPE LOCALITY: Sweden.
HABITAT: Grassy or mossy places.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 533, f. 1;* Fries, Icon. *pl. 40, f. 2.*

49. **Melanoleuca microspora** (Ellis) Murrill.

Agaricus (*Tricholoma*) *microsporus* Ellis, Bull. Torrey Club 5: 45. 1874.

Pileus fleshy, thin, 1–2 cm. broad; surface dull-reddish-purple, slightly rugose, with a glaucous bloom, subzonate on drying; lamellae deeply and narrowly sinuate, subconcolorous, pale-purple to reddish-yellow, scarcely crowded, 3 mm. broad; spores subglobose, 3–5 μ; stipe minutely pubescent, yellowish-pilose at the base, hollow, 2.5 cm. long, 2 mm. thick.

TYPE LOCALITY: Newfield, New Jersey.
HABITAT: In sphagnum or on rotten cedar stumps in a white cedar swamp.
DISTRIBUTION: New Jersey.
EXSICCATI: Ellis & Ev. N. Am. Fungi *2003.*

50. **Melanoleuca ionides** (Pers.) Murrill.

Agaricus ionides Pers. Syn. Fung. 338. 1801.
Tricholoma ionides Gill. Champ. Fr. 114. 1876.

Pileus fleshy, campanulate to plane, at length depressed, reaching 5 cm. broad; surface expallent, smooth, watery-red becoming violet, alutaceous when dry, margin subsinuate; lamellae arcuate-adnate, whitish to yellowish, 6 mm. broad; spores ellipsoid, smooth, hyaline, 6–7×3–5 μ; stipe solid, attenuate upward, glabrous, rose-colored, stuffed, 5–7 cm. long, 4–6 mm. thick.

TYPE LOCALITY: France.
HABITAT: Grassy ground.
DISTRIBUTION: New York and Greenland; also in Europe.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 533, f. 3;* Boudier, Ic. Myc. 1: *pl. 24*; Cooke, Brit. Fungi *pl. 95a* (*101*).

51. **Melanoleuca maculatescens** (Peck) Murrill.

Tricholoma maculatescens Peck, Ann. Rep. N. Y. State Mus. 44: 150. 1891.

Pileus compact, convex to expanded, obtuse, even, 4–7.5 cm. broad; surface slightly viscid when moist, reddish-brown, becoming rivulose and brown-spotted on drying, margin inflexed, exceeding the lamellae; context whitish, spongy; lamellae slightly emarginate, rather narrow, cinereous; spores oblong or subfusiform, pointed at the ends, uninucleate, 7.5×4 μ; stipe spongy-fleshy, equal, sometimes abruptly narrowed at the base, solid, stout, fibrillose, pallid or whitish, 5–7.5 cm. long, 12–18 mm. thick.

TYPE LOCALITY: Ohio.
HABITAT: Among fallen leaves in deciduous woods.
DISTRIBUTION: Ohio.
ILLUSTRATION: Hard, Mushrooms *f. 59.*

52. **Melanoleuca tricolor** (Peck) Murrill.

Tricholoma tricolor Peck, Ann. Rep. N. Y. State Mus. 41: 60. 1888.

Pileus broadly convex or nearly plane, sometimes slightly depressed in the center, firm, 5–10 cm. broad; surface dry, obscurely striate on the margin, pale-alutaceous inclining to russet; context whitish; lamellae thin, narrow, close, adnexed, pale-yellow, becoming brown or purplish-brown in drying; spores broadly ellipsoid or subglobose, 7.5 μ long; stipe stout, short, firm, tapering upward from the thickened or subbulbous base, white, 5–7.5 cm. long, 12–24 mm. thick.

TYPE LOCALITY: Selkirk, New York.
HABITAT: Grounds in woods.
DISTRIBUTION: New York.

53. **Melanoleuca Earleae** Murrill, sp. nov.

Pileus very large, thick, fleshy, gregarious, reaching 12 cm. broad; surface slightly viscid when moist, smooth, glabrous, pale-rosy-avellaneous becoming brownish when injured, margin incurved, silky-tomentose; lamellae deeply sinuate, broad, crowded, white tinged with rose, becoming fulvous with age after drying; spores broadly ellipsoid, smooth, hyaline, granular, 7–8×6–7 μ; stipe very thick and heavy, somewhat bulbous, concolorous, becoming glabrous, solid, about 7 cm. long, 3–4 cm. thick.

Type collected in pine woods under pine needles near Auburn, Alabama, November 2, 1899, *Mrs. F. S. Earle.*

DISTRIBUTION: Known only from the type locality.

54. **Melanoleuca rimosa** (Peck) Murrill.

Tricholoma rimosum Peck, Bull. N. Y. State Mus. **10**: 947. 1902.

Pileus fleshy, convex to nearly plane, 2.5–4 cm. broad; surface watery-brown and shining, paler when dry, hygrophanous, margin often splitting; flesh concolorous when moist, whitish when dry, taste farinaceous; lamellae rounded behind, adnexed, very close, thin, narrow, edges uneven, whitish or subcinereous; spores ellipsoid, 7.5–8.7×4–5 μ; stipe nearly equal, silky-fibrillose, whitish, hollow, 2.5–5 cm. long, 3–5 mm. thick.

TYPE LOCALITY: Bolton, New York.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.

55. **Melanoleuca submaculata** (Peck) Murrill.

Tricholoma submaculatum Peck, Ann. Rep. N. Y. State Mus. 46: 102. 1894.

Pileus convex to subplane, the center depressed, 2.5–5 cm. broad; surface brownish, dark-spotted, glabrous; context white; lamellae crowded, thin, white, orange when bruised; spores subglobose, 4–5×4 μ; stipe silky-fibrillose, white, the base often decumbent, solid, 2.5–3.5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Shokan, New York.
HABITAT: Margin of woods.
DISTRIBUTION: New York.

56. **Melanoleuca eduriformis** Murrill, sp. nov.

Pileus rather thin, becoming expanded or slightly depressed, gregarious to subcespitose, reaching 10 cm. broad; surface smooth, glabrous, polished, hygrophanous when wet, not viscid, isabelline to fulvous, scarcely darker at the center, margin concolorous, somewhat lobed; context white, with fragrant odor and very pleasant, mealy to nutty flavor; lamellae sinuate, rather narrow, crowded, white, unchanging; spores ellipsoid, smooth, hyaline, 5–6×2–3 μ; stipe larger above or below, rather irregular, pale-yellowish, white at the apex, smooth, glabrous, hollow, 8 cm. long, 1.5–2 cm. thick.

Type collected on the ground in leaf-mold by the Bronx River in the New York Botanical Garden, August 29, 1911, *W. A. Murrill.*

DISTRIBUTION: Known only from the type locality.

57. **Melanoleuca lugubris** (Peck) Murrill.

Tricholoma lugubre Peck, Ann. Rep. N. Y. State Mus. **49**: 16. 1896.

Pileus convex, often irregular or repand, usually cespitose, 4–8 cm. broad; surface moist, glabrous, smoky-brown or grayish-brown, margin involute; context white; lamellae almost free, close, narrow, whitish; spores globose, 6 μ; stipe short, glabrous, white, solid.

TYPE LOCALITY: Deans Mills, New York.
HABITAT: Under hemlocks.
DISTRIBUTION: New York.

58. **Melanoleuca niveipes** (Peck) Murrill.

Tricholoma niveipes Peck, Bull. Torrey Club **29**: 69. 1902.

Pileus hemispheric to subplane, 5–12 cm. broad; surface dark-brown or grayish-brown, dry, innate-fibrillose, almost virgate; context white; lamellae sinuate, close, rather narrow,

snow-white; spores oblong, 7–8×3 μ; stipe equal or subequal, snow-white, solid or stuffed, 5–7 cm. long, 6–12 mm. thick.

TYPE LOCALITY: South Yarmouth, Massachusetts.
HABITAT: Sandy soil under pines.
DISTRIBUTION: Massachusetts.

59. **Melanoleuca gravis** (Peck) Murrill.

Tricholoma grave Peck, Ann. Rep. N. Y. State Mus. 43: 63. 1890.

Pileus at first hemispheric to convex, compact, 12.5–20 cm. broad; surface glabrous, grayish-tawny and somewhat spotted when moist, paler when dry, margin paler, irregular, involute, covered with a minute, close, grayish-white tomentum or silkiness; context grayish-white; lamellae subdistant, rounded behind or sinuate-adnexed, at first whitish, then pale-ochraceous or tawny; spores broadly ellipsoid, 7.5×5 μ; stipe stout, compact, solid, subsquamulose, grayish-white, penetrating the soil deeply, 10 cm. long, 2.5–4 cm. thick.

TYPE LOCALITY: Manor, New York.
HABITAT: Mixed woods of pine and oak.
DISTRIBUTION: Northeastern United States.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **43**: *pl. 1, f. 5–8*.

60. **Melanoleuca fuliginea** (Peck) Murrill.

Tricholoma fuligineum Peck, Ann. Rep. N. Y. State Mus. **41**: 60. 1888.

Pileus convex or nearly plane, obtuse, often irregular, 2.5–6.5 cm. broad; surface dry, minutely squamulose, sooty-brown; context grayish, odor and taste farinaceous; lamellae subdistant, uneven on the edges, cinereous, becoming blackish on drying; spores oblong-ellipsoid, 7.5×4 μ; stipe short, solid, equal, glabrous, cinereous, 2.5–4 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: Among mosses and open places.
DISTRIBUTION: New York.

61. **Melanoleuca compressipes** Murrill, sp. nov.

Pileus convex to expanded, gregarious, 4–8 cm. broad; surface smooth, hygrophanous, moist, not viscid, dark-umber-brown becoming lighter on drying, usually darker on the disk, margin thin, entire; context thin, grayish or watery-brown, mild, without distinct odor; lamellae obscurely sinuate to nearly adnate, subcrowded, rather narrow, unequal, sordid-white becoming cinereous and at length dark-brown, not changing color when cut or bruised; spores subglobose, smooth, hyaline, 6–7.5 μ; stipe equal or tapering upward, often compressed, subglabrous, dirty-white, hollow or stuffed, 3–5 cm. long, 5–10 mm. thick.

Type collected on the ground in mixed woods near a small stream, at Auburn, Alabama, December 19, 1900, *Mrs. F. S. Earle.* Also collected in pine woods and in mixed woods in the same vicinity, January 22, 1900, and January 1, 1901, *Mrs. F. S. Earle.*
DISTRIBUTION: Alabama.

62. **Melanoleuca inocybiformis** Murrill.

Agaricus (*Tricholoma*) *Hebeloma* Peck, Bull. Buffalo Soc. Nat. Sci. 1: 45. 1873. Not *A. Hebeloma* Secr. 1833.

Pileus thin, broadly conic or subcampanulate, obtuse, 10 mm. broad; surface hygrophanous, brown with a darker disk and striatulate on the margin when moist, grayish when dry; lamellae broad, rounded behind and deeply emarginate, adnexed, yellowish; spores 6×4 μ; stipe equal, hollow, glabrous, pallid, 2.5 cm. long, 2 mm. thick.

TYPE LOCALITY: Worcester, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York.

63. **Melanoleuca subargillacea** Murrill, sp. nov.

Pileus fleshy, thick, irregular, convex to expanded, solitary or cespitose, 4–10 cm. broad; surface moist, shining, smooth, glabrous, not viscid, pale-argillaceous, margin even, white; context thin, white, brittle, odor none except when drying, taste mawkish and disagreeable; lamellae rather broad, becoming ventricose, crowded, sinuate, white, unchanging; spores ellip-

soid, smooth, hyaline, 5–7 × 2–3 μ; stipe short and thick, cylindric above, bulbous at the base, smooth, glabrous, dull-white, spongy within, brittle, 3–5 cm. long, 1–2 cm. thick.

Type collected in sandy soil in mixed woods near Auburn, Alabama, January 1, 1901, *Mrs. F. S. Earle.*

HABITAT: In sandy soil in oak woods or mixed woods.
DISTRIBUTION: Alabama.

64. **Melanoleuca phaeopodia** (Bull. & Vent.) Murrill.

Agaricus phaeopodius Bull. & Vent. Champ. Fr. **1**: 622. 1809.
Collybia phaeopodia Quél. Ench. Fung. 28. 1886.

Pileus depressed, gregarious, 5–9 cm. broad; surface dry, glabrous, fumoso-avellaneous, margin often irregular; context white, brittle, having a sweet, nutty taste, but no odor; lamellae sinuate, narrow, crowded, uneven, brittle, white to pallid; spores ellipsoid, smooth, hyaline, 7–9 × 5–6.5 μ; stipe subconcolorous, dry, glabrous, fleshy, stuffed or hollow, larger at the base, 4 cm. long, 0.75–2 cm. thick.

TYPE LOCALITY: France.
HABITAT: On the ground among weeds or in woods.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATION: Bull. Herb. Fr. *pl. 532, f. 2.*

65. **Melanoleuca Volkertii** Murrill, sp. nov.

Pileus convex to plane, at length depressed, somewhat irregular, thin, fragile, gregarious, reaching 7 cm. broad; surface smooth, glabrous, dry, avellaneous at the center, fading out to nearly white at the margin, the cuticle sometimes splitting radially; margin thin, entire or lobed, at first incurved, at length expanded; lamellae sinuate, rather crowded, of medium breadth, fragile, whitish, becoming subfulvous on drying; spores ellipsoid, smooth, hyaline, 4–6 × 3–4 μ; stipe usually short and thick, equal, smooth, glabrous, pallid or pale-avellaneous, spongy-stuffed, 3–4 cm. long, 1–2.5 cm. thick.

Type collected on the ground in woods east of the New York Botanical Garden, New York City, October 8, 1911, *W. A. Murrill & E. C. Volkert.*
DISTRIBUTION: Known only from the type locality.

66. **Melanoleuca piperata** (Peck) Murrill.

Tricholoma piperatum Peck, Bull. Torrey Club **26**: 63. 1899.

Pileus rather thin, firm, dry, convex, obtuse or subumbonate, 4–7 cm. broad; surface virgate with innate brownish fibrils, varying in color from grayish-brown to blackish-brown, sometimes with greenish or yellowish tints, often a little darker in the center; context white or whitish, taste acrid; lamellae broad, close, rounded behind, adnexed, whitish or yellowish; spores ellipsoid, 6–7 × 5 μ; stipe generally short, equal, solid, silky, slightly mealy or pruinose at the top, white or slightly tinged with yellow, 5–7 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Massachusetts.
HABITAT: On the ground in woods.
DISTRIBUTION: Massachusetts, New York, and Pennsylvania.

67. **Melanoleuca semivestita** (Peck) Murrill.

Tricholoma semivestitum Peck, Bull. Torrey Club **22**: 485. 1895.

Pileus thin, expanded, the center depressed or subumbilicate, 12–24 mm. broad; surface dry, blackish-brown, glabrous, margin deflexed or involute; lamellae emarginate, close, whitish tinged with blue, edges often dentate; spores broadly ellipsoid or subglobose, uninucleate, 4–5 × 4 μ; stipe short, slightly thickened at the base, brown, tomentose below, solid, 1.5–2.5 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Rooks County, Kansas.
HABITAT: On old grass roots in a sandy prairie pasture.
DISTRIBUTION: Kansas.

68. **Melanoleuca praecox** Murrill, sp. nov.

Pileus becoming plane and at length depressed, solitary, 4 cm. broad; surface dry, avellaneous, shining, minutely imbricate, margin irregular or somewhat lobed; context whitish, mild, pleasant to the taste; lamellae sinuate, broad, nearly plane, rather crowded, several

times inserted, avellaneous with a murinous tint; spores broadly ellipsoid, smooth, hyaline, granular, 7–9×5–7 μ; stipe enlarged above, avellaneous, glabrous, densely longitudinally striate, smooth and white at the base, white within, stuffed, having a rather tough rind, about 4 cm. long, 3.5 mm. thick below and 7 mm. thick above.

Type collected in rich soil in thin deciduous woods near the New York Botanical Garden, New York City, June 4, 1912, *E. C. Volkert.*

DISTRIBUTION: Known only from the type locality.

69. **Melanoleuca subfuliginea** Murrill, sp. nov.

Pileus convex, umbonate, solitary, 3 cm. broad; surface smooth, glabrous, avellaneous, dark-avellaneous at the center, becoming chestnut-colored on the umbo after drying, margin incurved, blackening on drying; lamellae sinuate, plane, crowded, broad, regular, pale-avellaneous, becoming smoky-umbrinous on drying; spores ellipsoid, pointed at one end, smooth, hyaline, 6–7×3–4 μ; stipe tapering upward from a bulbous base, smooth, dry, glabrous, white with a grayish tint, 4 cm. long, 1 cm. thick.

Type collected in leaf-mold in deciduous woods at Stockbridge, Massachusetts, October 3–4, 1911, *W. Gilman Thompson & W. A. Murrill.*

DISTRIBUTION: Known only from the type locality.

70. **Melanoleuca Tottenii** Murrill, sp. nov.

Pileus firm, convex to nearly plane, regular or slightly lobed, very rigid on drying, reaching 6 cm. broad; surface very smooth, glabrous, pale-grayish-tan with brownish tints in the center and indistinct areas of pinkish-lilac; margin thin, projecting, sharply incurved on drying; context white with a faint rosy tint, very thin except at the center; lamellae deeply sinuate, sometimes separating from the stipe, rather distant, broad, ventricose, toughish to rigid, white, becoming tinged with umbrinous to smoke-colored with age or on drying; spores ellipsoid, smooth, hyaline, 4.5–6.5×3–3.5 μ; stipe rather short and thick, subequal, white with a faint lilac tint, smooth, glabrous, shining, solid or spongy, faintly tinged with rose within, about 3–5 cm. long, 1–1.5 cm. thick.

Type collected on the ground in woods in Battle's Park, north of the cemetery, at Chapel Hill, North Carolina, November 25, 1913, *W. C. Coker & H. R. Totten 1008.* Also collected in mixed woods in the same vicinity, October 28, 1913, *W. C. Coker & H. R. Totten 949.*

DISTRIBUTION: Chapel Hill, North Carolina.

71. **Melanoleuca resplendens** (Fries) Murrill.

Tricholoma resplendens Fries, Monog. Hymen. Suec. ed. 2. 1: 55. 1857.

Pileus fleshy, convex to nearly plane, gregarious, 5–10 cm. broad; surface smooth, glabrous, viscid, white, becoming yellow and slightly silky on the disk, shining and often hyaline-spotted when dried, margin straight; context white, taste mild, odor pleasant; lamellae nearly free when young, then emarginate, somewhat crowded, rather thick, entire, white; spores 7.5×4 μ; stipe solid, glabrous, slightly floccose at the apex, equal or subbulbous, smooth, white, dry, 5–7.5 cm. long, 8–16 mm. thick.

TYPE LOCALITY: Sweden.
HABITAT: Ground in woods.
DISTRIBUTION: Massachusetts, New York, and North Carolina; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 29;* Gill. Champ. Fr. *pl. 695;* Cooke, Brit. Fungi *pl. 55 (64).*

72. **Melanoleuca subresplendens** Murrill, sp. nov.

Pileus fleshy, convex, solitary, 8.5 cm. broad; surface smooth, glabrous, milk-white, slightly viscid when moist, not at all silky, margin distinctly lobed, concolorous; context white, with farinaceous taste and odor; lamellae plane in mass, sinuate, crowded, rather broad, uneven on the edges, pallid, becoming avellaneous or subfuliginous on drying; spores ellipsoid, smooth, hyaline, 6–7×4–5 μ; stipe slightly tapering downward, smooth, glabrous, whitish but not shining, solid with a fibrous rind, not at all bulbous, 7 cm. long, 1.3–2 cm. thick.

Type collected on the ground in woods at Cold Spring Harbor, Long Island, New York, October 27, 1912, *R. A. Harper.*

DISTRIBUTION: Known only from the type locality.

73. **Melanoleuca angustifolia** Murrill, sp. nov.

Pileus fleshy, rather thin, conic-convex to plane with a broad, conic umbo, subcespitose, reaching 9 cm. broad; surface slimy-viscid when wet, smooth, glabrous, brownish-yellow with a lilac tint at the center, fading out to a broad, white, marginal zone; cuticle separable, margin thin, white, entire, inflexed, especially on drying; context firm, white, rather thin, with pleasant odor and nutty flavor; lamellae plane in mass, very narrow and much crowded, sinuate, several times inserted, white, slightly yellowish when seen at some angles; spores ellipsoid, smooth, hyaline, granular, 6–7×3–4 μ; stipe equal or nearly so, smooth, dry, slightly pruinose, milk-white, reaching 9 cm. long and 1.5 cm. thick.

Type collected on the ground in woods on the bank of the Bronx River in the New York Botanca Garden, August 30, 1911, *W. A. Murrill.*
DISTRIBUTION: Known only from the type locality.

74. **Melanoleuca intermedia** (Peck) Murrill.

Tricholoma intermedium Peck, Ann. Rep. N. Y. State Mus. **41**: 60. 1888.

Pileus thin, campanulate, obtuse, 5–7.5 cm. broad; surface glabrous, slightly viscid when moist, greenish-yellow; context white; lamellae crowded, free or slightly adnexed, white; spores broadly ellipsoid, 5×4 μ; stipe equal, firm, glabrous, white, 2.5–5 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: Woods.
DISTRIBUTION: Known only from the type locality.

75. **Melanoleuca terrifera** (Peck) Murrill.

Tricholoma terriferum Peck, Ann. Rep. N. Y. State Mus. **41**: 60. 1888.

Pileus broadly convex or nearly plane, 7.5–10 cm. broad; surface glabrous, viscid, pale-alutaceous, generally soiled with adhering particles of earth carried up in its growth, margin irregular, often wavy; context white, with no decided odor; lamellae thin, crowded, slightly adnexed, white, not spotted or changeable; spores minute, subglobose, 3 μ long; stipe equal, short, solid, white, floccose-squamulose at the apex, 2.5–4 cm. long, 12–16 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: Thin woods.
DISTRIBUTION: Known only from the type locality.

76. **Melanoleuca Russula** (Scop.) Murrill.

Agaricus Russula Scop. Fl. Carn. ed. 2. **2**: 435. 1772.
Tricholoma Russula Gill. Champ. Fr. 91. 1876.
Agaricus (*Tricholoma*) *rubicundus* Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 42. 1873.

Pileus fleshy, convex, becoming plane or centrally depressed, obtuse, solitary or subcespitose, 7.5–12.5 cm. broad; surface viscid when moist, smooth or dotted with granular squamules on the disk, pale-pink or rose-red suffused at times with yellowish stains, margin usually paler, involute and minutely downy in the young plant; context white, sometimes tinged with red, taste mild; lamellae subdistant, rounded behind or subdecurrent, white, often becoming red-spotted with age; spores ellipsoid, 6–7.5×4 μ; stipe solid, firm, dry, white, often reddish below, squamulose at the apex, 2.5–5 cm. long, 12–16 mm. thick.

TYPE LOCALITY: Carniola.
HABITAT: On the ground under oaks or in mixed woods.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATIONS: Bull. N. Y. State Mus. **10**: *pl. 77, f. 1–5;* Cooke, Brit. Fungi *pl. 1116;* Gill. Champ. Fr. *pl. 60* (*696*); Lucand, Champ. Fr. *pl. 128;* McIlv. Am. Fungi *pl. 18, f. 3;* Hard, Mushrooms *f. 51.*
EXSICCATI: Herpell, Präp. Hutpilze *61;* Shear, N. Y. Fungi *1402.*

77. **Melanoleuca subtransmutans** Murrill, sp. nov.

Pileus convex to expanded, gregarious, reaching 4–8 cm. broad; surface smooth, viscid, light-pinkish-brown when shaded, becoming dark-brown where fully exposed, margin at length slightly sulcate; context whitish, unchanging, mild; lamellae crowded, rather narrow, sinuate, white stained with reddish, becoming darker with age; spores ellipsoid, smooth, hyaline, 6–7×

3–4 μ; stipe equal, white stained with reddish, becoming tawny with age, whitish-tomentose above, solid or spongy, 3–4 cm. long, 8–10 mm. thick.

Type collected on the ground in pine woods near Auburn, Alabama, December 26, 1899, *F. S. Earle*. Also collected near Auburn, Alabama, December 15, 1897, *C. F. Baker 94*, and in pine woods near Auburn, Alabama, December 16 and 19, 1900, *Mrs. F. S. Earle*.
DISTRIBUTION: Alabama.

78. **Melanoleuca viscosa** (Peck) Murrill.

Tricholoma viscosum Peck, Bull. Torrey Club **31**: 178. 1904.

Pileus fleshy, convex, 2–5 cm. broad; surface smooth, glutinous, shining when dry, yellowish-tawny, darker or reddish-brown in the center, margin irregular or wavy, often turned upward when old; context white, odor slight but unpleasant; lamellae narrow, close, nearly free, white; spores minute, subglobose, 3–4 μ long; stipe firm, equal, fragile, solid, flexuous, glutinous, white above, brown below, 2.5–4 cm. long, 4–5 cm. thick.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: Low ground.
DISTRIBUTION: Known only from the type locality.

79. **Melanoleuca transmutans** (Peck) Murrill.

Agaricus (*Tricholoma*) *transmutans* Peck, Ann. Rep. N. Y. State Mus. **29**: 38. 1878.

Pileus convex, cespitose, 5–10 cm. broad; surface nearly glabrous, viscid when moist, brownish, reddish-brown, or tawny-red, usually paler on the margin; context white, taste and odor farinaceous; lamellae narrow, close, sometimes branched, whitish or pale-yellowish, becoming dingy or reddish-spotted when old; spores globose to subglobose, smooth, hyaline, granular, 4–5 μ; stipe equal or slightly tapering upward, glabrous or slightly silky-fibrillose, stuffed or hollow, whitish, often marked with reddish stains or becoming reddish-brown toward the base, white within, 7.5–10 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Ground in coniferous woods.
DISTRIBUTION: Massachusetts, New York, and New Jersey.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 48: *pl. 21, f. 1–5*.

80. **Melanoleuca portentosa** (Fries) Murrill.

Agaricus portentosus Fries, Syst. Myc. **1**: 39. 1821.
Tricholoma portentosum Quél. Champ. Jura Vosg. 327. 1873.

Pileus rather fleshy, convex to expanded, subumbonate, 6–12 cm. broad; surface gray with a purple tint to fuliginous, somewhat viscid in moist weather, shining, radiate-lineate, margin thin, concolorous; context white, with strong odor, taste mild; lamellae rounded behind, rather broad, subdistant, white or pallid, becoming gray or yellow; spores subglobose, smooth, hyaline, 4–6 μ long; stipe usually short, subequal, glabrous, striate at times, white, solid, 6–12 cm. long, 1–2 cm. thick.

TYPE LOCALITY: Sweden.
HABITAT: On the ground in coniferous woods.
DISTRIBUTION: Northern United States from Massachusetts to Oregon; also in Europe.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 25, f. 1–9;* Fries, Ic. Hymen. *pl. 24;* Gill. Champ. Fr. *pl. 65 (692);* Cooke, Brit. Fungi *pl. 54 (61);* Hard, Mushrooms *f. 63*.
EXSICCATI: Herpell, Präp. Hutpilze *36;* Sydow, Myc. Mar. *2803*.

81. **Melanoleuca aurantia** (Schaeff.) Murrill.

Agaricus aurantius Schaeff. Fung. Bavar. **4**: 18. 1774.
Armillaria aurantia Quél. Champ. Jura Vosg. 211. 1872.
Agaricus (*Tricholoma*) *Peckii* Howe, Bull. Torrey Club **6**: 66. 1875.

Pileus convex or nearly plane, 5–7.5 cm. broad; surface viscid when moist, squamulose, tawny-red inclining to tawny-orange; context white, odor farinaceous, taste farinaceous to unpleasant; lamellae narrow, close, sometimes branched, white, discolored or spotted with age; spores minute, broadly ellipsoid or subglobose, 4–5 μ long; stipe equal or slightly thickened at the base, squamulose, white at the top or sometimes with reddish droplets in wet weather, elsewhere concolorous, 5–7.5 cm. long, 8–12 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: In thin woods.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *f. 86;* Schaeff. Fung. Bavar. *pl. 37;* Fries, Ic. Hymen. *pl. 26;* Gill. Champ. Fr. *pl. 51 (31).*

82. **Melanoleuca equestris** (L.) Murrill.

Agaricus equestris L. Sp. Pl. 1173. 1753.
Agaricus crassus Scop. Fl. Carn. ed. 2. 2: 442. 1772.
Agaricus aureus Schaeff. Fung. Bavar. 4: 19. 1774.
Tricholoma equestre Quél. Champ. Jura Vosg. 39. 1872.

Pileus fleshy, compact, convex becoming expanded, obtuse, 7.5–12.5 cm. broad, surface pale-yellowish, more or less reddish-tinged, the disk and central scales often darker, margin naked, often flexuous; context white or tinged with yellow, at first farinaceous, then unpleasant to the taste; lamellae rounded behind, close, nearly free, sulfur-yellow; spores 6–7.5×4–5 μ; stipe stout, solid, pale-yellow or white, white within, 2.5–6 cm. long, 1–2 cm. thick.

TYPE LOCALITY: Sweden.
HABITAT: Under or near conifers.
DISTRIBUTION: Canada to Alabama and west to California; also in Europe.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 24, f. 1–12;* Bull. N. Y. State Mus. 157: *pl. 124, f. 6–9;* Cooke, Brit. Fungi *pl. 72 (59);* Gill. Champ. Fr. *pl. 64 (672);* Lucand, Champ. Fr. *pl. 1;* Mycologia 1: *pl. 1, f. 3.*

83. **Melanoleuca rhinaria** (Berk. & Curt.) Murrill.

Agaricus (Tricholoma) rhinarius Berk. & Curt. Ann. Mag. Nat. Hist. III. 4: 2. 1859.

Pileus convex, obtuse, densely gregarious, 13 cm. broad; surface yellowish-brown and slightly areolate in the center, yellowish-white on the margin, which is scaly and at first involute; lamellae more or less forked, emarginate, adnate, crowded, white to yellow; spores ellipsoid, smooth, hyaline, granular, 5–6×3–4 μ; stipe stout, furfuraceous, yellow, 8–10 cm. long, 2 mm. thick.

TYPE LOCALITY: New England.
HABITAT: Among leaves in woods.
DISTRIBUTION: New England.

84. **Melanoleuca subterrea** Murrill, sp. nov.

Pileus subconic or convex to expanded, irregular at times, gregarious, reaching 6–8 cm. broad; surface viscid, gray, with black fibrils arranged in lines, the disk somewhat darker, margin thin, concolorous, usually entire; context white, taste farinaceous; lamellae sinuate, ventricose, subcrowded, unequal, white with a yellowish tint; spores ellipsoid, smooth, hyaline, 5–6×2–3 μ; stipe rather short, subequal, smooth, glabrous, white or slightly yellowish, hollow, 4–6 cm. long, 1 cm. thick.

Type collected on the ground in pine woods near Auburn, Alabama, December 24, 1899, *Mrs. F. S. Earle.*
DISTRIBUTION: Alabama.

85. **Melanoleuca centralis** (Peck) Murrill.

Tricholoma portentosum centrale Peck, Bull. N. Y. State Mus. 5: 673. 1899.

Pileus convex, sometimes slightly umbonate, gregarious, reaching 3–8 cm. broad; surface viscid, virgate with innate blackish fibrils, pale-yellow or greenish-yellow, sooty-brown in the center; context white; lamellae moderately broad and close, emarginate, white or yellowish; spores broadly ellipsoid, smooth, hyaline, 4–6 μ; stipe equal, solid, white, 4–8 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In woods.
DISTRIBUTION: Northeastern United States.
ILLUSTRATIONS: Bull. N. Y. State Mus. 5: *pl. 57, f. 1–5.*

86. **Melanoleuca subsejuncta** (Peck) Murrill.

Tricholoma subsejunctum Peck, Bull. N. Y. State Mus. 157: 53. 1912.

Pileus fleshy, conic or convex, gregarious, 2.5–6.5 cm. broad; surface slightly viscid when moist, virgate or reticulate with blackish-brown fibrils, blackish-brown, often pale-yellow or

greenish-yellow on the margin, which is frequently wavy and lobed; context white, taste farinaceous; lamellae thin, close, rounded behind, adnexed, white, sometimes tinged with yellow in front; spores minute, 5–6×4–5 μ; stipe stout, solid, nearly equal, white, sometimes tinged with yellow, 3–5 cm. long, 6–12 mm. thick.

TYPE LOCALITY: Mohawk Hill, Lewis County, New York.
HABITAT: Among mosses and fallen leaves under evergreen and deciduous trees on the margin of a swamp.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Bull. N. Y. State Mus. 157: *pl. 124, f. 1–5.*

87. **Melanoleuca sejuncta** (Sow.) Murrill.

Agaricus sejunctus Sow. Engl. Fungi *pl. 126*. 1799.

Pileus fleshy, convex to expanded or depressed, usually umbonate, 2.5–7.5 cm. broad; surface slightly viscid, streaked with innate brown or blackish fibrils, varying from whitish or yellowish to olivaceous or smoky-brownish; context white, fragile, odor and taste somewhat mealy; lamellae broad, uneven, subdistant, fragile, rounded behind or emarginate, white with yellow reflections from a lemon-yellow layer between the lamellae; spores subglobose, smooth, hyaline, 5–6 μ; stipe very variable in length and shape, solid, often irregular, white to yellowish or olivaceous, 2.5–7.5 cm. long, 8–16 mm. thick.

TYPE LOCALITY: England.
HABITAT: On the ground in mixed woods.
DISTRIBUTION: Eastern United States; also in Europe.
ILLUSTRATIONS: Sow. Engl. Fungi *pl. 126;* Gill. Champ. Fr. *pl. 67 (700);* Atk. Stud. Am. Fungi *f. 89.*

88. **Melanoleuca tenuipes** Murrill, Mycologia 5: 223. 1913.

Tricholoma tenuipes Murrill, Mycologia 5: 223. 1913.

Pileus small, thin, convex, not expanding, becoming very slightly depressed at the center, 2 cm. broad; surface pallid, with a stramineous or avellaneous tint, smooth, glabrous, margin entire, concolorous, incurved; lamellae sinuate-adnexed, distant, broad, several times inserted, white, more or less notched on the edge; spores ellipsoid, smooth, hyaline, 5–7×3.5–4.5 μ; stipe slender, equal, solid, concolorous, white at the apex, smooth, dry, glabrous, 4 cm. long, 2 mm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

89. **Melanoleuca platyphylla** Murrill, Mycologia 5: 219. 1913.

Tricholoma platyphyllum Murrill, Mycologia 5: 223. 1913.

Pileus convex to slightly depressed, rather thick, solitary, 3.5 cm. broad; surface smooth, subglabrous, white with a cremeous tint, margin entire, concolorous; lamellae white, subdistant, ventricose, very broad; spores ellipsoid, smooth, hyaline, granular, 8.5×6 μ; stipe tapering upward from a swollen base, pure-white, smooth, glabrous, 8 cm. long, 5–9 mm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In humus in woods.
DISTRIBUTION: Known only from the type locality.

90. **Melanoleuca pinicola** Murrill, Mycologia 5: 219. 1913.

Tricholoma pinicola Murrill, Mycologia 5: 223. 1913.

Pileus rather thin, convex, umbonate, becoming nearly plane, gregarious, reaching 5 cm. broad; surface smooth, glabrous, subshining, dry or slightly moist, milk-white, margin entire, concolorous, strongly inflexed on drying; lamellae sinuate, not crowded, rather broad, plane or slightly ventricose, white or slightly discolored; spores ellipsoid, smooth, hyaline, 5–6×3–4 μ; stipe slightly tapering upward, fleshy, solid or stuffed, milk-white, smooth, glabrous, whitish-mycelioid at the base, 5–7 cm. long, 4–9 mm. thick.

TYPE LOCALITY: Tacoma, Washington.
HABITAT: On much decayed coniferous wood.
DISTRIBUTION: Known only from the type locality.

91. **Melanoleuca farinacea** Murrill, Mycologia 5: 217. 1913.

Tricholoma farinaceum Murrill, Mycologia 5: 223. 1913.

Pileus rather thin but fleshy, convex to expanded, umbonate, gregarious to subcespitose, reaching 8 cm. broad; surface white, smooth, glabrous, margin entire, concolorous; context white, with strong farinaceous odor; lamellae sinuate, broad, several times inserted, not crowded, ventricose, white; spores ellipsoid, smooth, hyaline, 5–6×3–4 μ; stipe bulbous and whitish-mycelioid at the base, white, subglabrous, smooth, stuffed or hollow, fleshy, 5–6 cm. long, 5–10 mm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In humus in woods.
DISTRIBUTION: Known only from the type locality.

92. **Melanoleuca sublurida** Murrill, Mycologia 5: 221. 1913.

Tricholoma subluridum Murrill, Mycologia 5: 223. 1913.

Pileus firm, conic to convex with prominent umbo, solitary, 7 cm. broad; surface smooth, minutely squamulose, whitish with a caesious tint, the center black, smooth, and shining, margin entire or slightly undulate, white, deflexed on drying; lamellae sinuate, plane, broad, whitish, distant; spores subglobose, smooth, hyaline, 3–4 μ; stipe subequal, dry, white with grayish, farinaceous scales, solid, about 6 cm. long, and 1.5 cm. thick.

TYPE LOCALITY: Glen Brook, Oregon.
HABITAT: In soil in woods.
DISTRIBUTION: Known only from the type locality.

93. **Melanoleuca Olesonii** Murrill, Mycologia 5: 218. 1913.

Tricholoma Olesonii Murrill, Mycologia 5: 223. 1913.

Pileus convex to plane, large, rather thick at the center, fleshy, gregarious, reaching about 14 cm. broad; surface pure-white, smooth, glabrous, moist, margin thin, entire or slightly lobed, concolorous, not inflexed on drying; lamellae broad, ventricose, crowded, sinuate, white becoming discolored on drying; spores ellipsoid, smooth, hyaline, 7–9×4–5 μ; stipe short, thick, equal or slightly bulbous, smooth, glabrous, white, solid, about 4–5 cm. long and 2–3 cm. thick.

TYPE LOCALITY: Mission Cañon, near Santa Barbara, California.
HABITAT: On the ground under an oak.
DISTRIBUTION: Known only from the type locality.

94. **Melanoleuca submulticeps** Murrill, Mycologia 5: 221. 1913.

Tricholoma submulticeps Murrill, Mycologia 5: 223. 1913.

Pileus large, fleshy, convex to plane, becoming depressed with age, densely cespitose, reaching 10–12 cm. broad; surface smooth, glabrous, hygrophanous, white, margin entire, concolorous; lamellae sinuate, rather crowded, plane, pure-white; spores globose, smooth, hyaline, granular, 7–8 μ; rarely reaching 10 μ; stipe white, hygrophanous, smooth, glabrous, hollow, ventricose or enlarged below, 6–10 cm. long, reaching 3 cm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

95. **Melanoleuca rudericola** Murrill, Mycologia 5: 220. 1913.

Tricholoma rudericola Murrill, Mycologia 5: 223. 1913.

Pileus rather thin, broad, somewhat irregular, convex to plane, scattered, 10–14 cm. broad; surface smooth, glabrous, slightly moist, light-buff, margin thin, entire to lobed, concolorous, context white, without characteristic odor or taste; lamellae sinuate, narrow, subcrowded, many times inserted, white; spores ellipsoid, smooth, hyaline, 5–7×2.5–4.5 μ; stipe cylindric; equal, scarcely enlarged at the base, grayish-white with a tinge of purple, smooth, glabrous, solid, 5–10 cm. long, 1–1.5 cm. thick.

TYPE LOCALITY: Madera Creek, California.
HABITAT: In rich ground by a heap of rubbish.
DISTRIBUTION: Known only from the type locality.

96. **Melanoleuca bicolor** Murrill, Mycologia 5: 215. 1913.

Tricholoma bicolor Murrill, Mycologia 5: 223. 1913.

Pileus very firm, convex to nearly plane, somewhat gibbous, about 6–12 cm. broad; surface dry, smooth, glabrous, avellaneous with a rosy tint, margin concolorous or slightly paler, often splitting; lamellae broad, rather close, emarginate with a slight decurrent tooth, firm, drying readily, white; spores subglobose, smooth, hyaline, 6–7 μ; stipe equal or somewhat enlarged below, white, smooth, minutely tomentose to glabrous, solid, 5–6 cm. long, about 1 cm. thick.

TYPE LOCALITY: Glen Brook, Oregon.
HABITAT: In humus in woods, and on the ground under an oak.
DISTRIBUTION: Oregon and California.

97. **Melanoleuca roseibrunnea** Murrill, Mycologia 5: 220. 1913.

Tricholoma roseibrunneum Murrill, Mycologia 5: 223. 1913.

Pileus convex to somewhat depressed, gregarious, reaching 8–10 cm. broad; surface smooth, dry, glabrous, brownish-pink with browner circular spots, margin paler with a cremeous tint, somewhat irregular and often upturned with age; context white, odor farinaceous, taste farinaceous with a faint bitter flavor which gradually becomes stronger, eaten by slugs; lamellae sinuate with a decurrent tooth, close, several times inserted, white; spores subglobose to ovoid, smooth, hyaline, 5–7×4–5 μ; stipe cylindric, equal or at times enlarged at the base, smooth, finely tomentose to subglabrous, white or whitish, solid, 6–8 cm. long, 1–1.5 cm. thick, usually thicker at the base.

TYPCE LOCALITY: Seattle, Washington.
HABITAT: Among humus on the ground in woods.
DISTRIBUTION: Washington, Oregon, and California.

98. **Melanoleuca nuciolens** Murrill, Mycologia 5: 218. 1913.

Tricholoma nuciolens Murrill, Mycologia 5: 223. 1913.

Pileus convex to nearly plane, often becoming depressed and irregular with age, gregarious, subcespitose, reaching 6 cm. broad; surface glabrous, rather uneven, hygrophanous, pale-rosy-isabelline, margin concolorous, undulate to conspicuously lobed and upturned with age; context white, thin, having the odor of walnuts in dried specimens; lamellae sinuate varying to adnate, narrow, arcuate, rather distant, pale-rosy-isabelline, becoming slightly purplish-spotted when bruised or on drying; spores ellipsoid, smooth, hyaline, 6×3.5 μ; stipe equal or slightly tapering upward, sometimes distorted in old specimens, smooth, glabrous, pallid, hollow, almost cartilaginous, about 5–6 cm. long, 1–1.5 cm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In sandy soil in woods.
DISTRIBUTION: Known only from the type locality.

99. **Melanoleuca subvelata** Murrill, Mycologia 5: 222. 1913.

Tricholoma subvelatum Murrill, Mycologia 5: 223. 1913.

Pileus convex-conic when young, not fully expanding, loosely clustered, 3–5 cm. broad; surface smooth, glabrous, moist but not viscid, latericious, leaving a stain on paper, margin entire, strongly inflexed, concolorous or somewhat paler; lamellae sinuate-adnate to adnexed, not crowded, broad, ventricose, pallid; spores ovoid, smooth, hyaline, uninucleate, 5–7×2.5–4.5 μ; stipe subequal to slightly ventricose, rosy, smooth and glabrous at the apex, fibrillose-shaggy near the center, fleshy, solid, 7 cm. long, about 1 cm. thick; veil scanty, fibrillose, rosy, evanescent, persisting as fibrils on the margin and stipe.

TYPE LOCALITY: Seattle, Washington.
HABITAT: Among humus under a log in woods.
DISTRIBUTION: Known only from the type locality.

100. **Melanoleuca collybiiformis** Murrill, Mycologia 5: 216. 1913.

Tricholoma collybiiforme Murrill, Mycologia 5: 223. 1913.

Pileus broad, thin, convex to plane, drying easily like species of *Collybia*, gibbous, reaching 10 cm. broad; surface dry, smooth, glabrous, fulvous at the center, pale-fulvous near the entire,

smooth margin; lamellae rather crowded, white, sinuate, the edges undulate or somewhat notched; spores globose or subglobose, smooth, hyaline, about 3.5 μ; stipe eccentric, bulbous, rather broad, fleshy, hollow, white, radicate, 6 cm. long, 1–2 cm. thick.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In humus in woods.
DISTRIBUTION: Known only from the type locality.

101. **Melanoleuca Harperi** Murrill, Mycologia 5: 217. 1913.

Tricholoma Harperi Murrill, Mycologia 5: 223. 1913.

Pileus broad, rather thin, becoming plane or depressed, gregarious or growing in circles, reaching 10–15 cm. broad; surface umbrinous, hygrophanous, not viscid, smooth, glabrous, margin entire or slightly lobed, concolorous; lamellae sinuate, white, not spotted, crowded, rather broad, ventricose, usually separating from the stipe with age; spores broadly ellipsoid, smooth, hyaline, 7–8$\times$4 μ; stipe very short and thick, bulbous, solid, smooth, glabrous, white, about 3–4 cm. long and 2–3.5 cm. thick.

TYPE LOCALITY: Berkeley, California.
HABITAT: In rich soil.
DISTRIBUTION: California.

102. **Melanoleuca striatella** Murrill, Mycologia 5: 221. 1913.

Tricholoma striatellum Murrill, Mycologia 5: 223. 1913.

Pileus convex and gibbous when young, becoming depressed with age, firm, fleshy, scattered, 5–7.5 cm. broad; surface smooth, subglabrous, pale-mouse-gray, very minutely striate except at the center, margin quite thick, entire, concolorous; context grayish-white with farinaceous taste, quite thick at the center but very thin toward the margin; lamellae sinuate to adnexed, broad, plane or ventricose, close, white; spores globose, smooth, hyaline, 5–7 μ; stipe cylindric or slightly compressed, equal, longitudinally striate, whitish, solid, 3–6 cm. long, 1–2 cm. thick.

TYPE LOCALITY: Stanford University, California.
HABITAT: On the ground under live oaks.
DISTRIBUTION: Known only from the type locality.

103. **Melanoleuca subcinereiformis** Murrill, sp. nov.

Pileus convex to nearly plane, with a small rounded umbo, solitary, reaching 5 cm. broad; surface smooth, finely pruinose, smoky-avellaneous, slightly darker on the umbo, margin entire, straight, white; context thin, white, without characteristic odor or taste; lamellae adnexed, nearly free, slightly ventricose, crowded, of medium breadth, white; spores ellipsoid, smooth, hyaline, uninucleate, 7–8.5$\times$4–5 μ; stipe slender, equal, hollow, with rather tough rind, pruinose, white, with a faint dirty-yellowish tint, about 5 cm. long and 6 mm. thick.

Type collected on the ground among decaying leaves and twigs in mixed woods near Corvallis, Oregon, November 6–11, 1911, *W. A. Murrill 901.*
DISTRIBUTION: Known only from the type locality.

104. **Melanoleuca avellanea** Murrill, Mycologia 5: 215. 1913.

Tricholoma avellaneum Murrill, Mycologia 5: 223. 1913.

Pileus convex, becoming plane, thick, fleshy, solitary, reaching 8 cm. broad; surface dry, smooth, glabrous, avellaneous, margin entire, concolorous, inflexed on drying; lamellae slightly sinuate varying to adnate, close, narrow, arcuate, pure-white changing to yellowish on drying; spores ellipsoid, smooth, hyaline, about 6$\times$3 μ; stipe much enlarged at the base, rather short, fleshy, solid, white, smooth, slightly scabrous above, about 7 cm. long and 2 cm. thick, reaching 4 cm. thick at the base.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In sandy soil mixed with humus in woods and on decayed wood.
DISTRIBUTION: Known only from the type locality.

105. **Melanoleuca fumosella** Murrill, sp. nov.

Pileus convex to depressed and somewhat irregular, scattered, 5.5–8 cm. broad; surface smooth, dry, opaque, pale-smoky, darker with age, margin paler at times, often lobed; context

white, compact, with strongly farinaceous odor and taste; lamellae narrow to medium, sinuate, slightly decurrent at times with age, white, unchanging; spores ellipsoid, smooth, hyaline, 5–6.5×3–4 μ; stipe subequal, white, smooth, usually solid within, 4–7 cm. long, 1.5–2.3 cm. thick.

Type collected among oak leaves at Claremont, California, in January, *C. F. Baker 5078*.
DISTRIBUTION: Known only from the type locality.

106. **Melanoleuca portolensis** Murrill, Mycologia 5: 219. 1913.

Tricholoma portolense Murrill, Mycologia 5: 223. 1913.

Pileus rather thick, convex with a prominent umbo, becoming nearly plane, scattered, 6–11 cm. broad; surface smooth, moist, glabrous, brownish-gray, darker toward the center, margin entire, concolorous; context white, with a slightly nutty taste but without characteristic odor; lamellae rather narrow, slightly sinuate, plane, several times inserted, crowded, white; spores ellipsoid, smooth, hyaline, 5–7×2.5–3.5 μ; stipe tapering upward from an enlarged base, nearly white, smooth above, somewhat roughened below, glabrous, solid, 6–8 cm. long, 1.5–2 cm. thick; veil rudimentary, leaving a trace upon the stipe.

TYPE LOCALITY: Portola, California.
HABITAT: On the ground under redwoods.
DISTRIBUTION: Known only from the type locality.

107. **Melanoleuca oreades** Murrill, Mycologia 5: 218. 1913.

Tricholoma oreades Murrill, Mycologia 5: 223. 1913.

Pileus becoming broadly convex or plane to somewhat depressed, large, fleshy, growing in circles, subcespitose at times, reaching 15 cm. broad; surface dry, smooth, slightly silky-striate, pale-avellaneous; context with an agreeable, nutty flavor and an odor somewhat suggestive of skunk cabbage; lamellae slightly sinuate, crowded, narrow, white, discolored on drying; spores ellipsoid, smooth, hyaline, 6–7×4–5 μ; stipe cylindric, solid, fleshy, white or pale-avellaneous, 5–8 cm. long, 1–1.5 cm. thick.

TYPE LOCALITY: Tacoma, Washington.
HABITAT: In the edge of woods on the border of a lake.
DISTRIBUTION: Known only from the type locality.

108. **Melanoleuca secedifolia** Murrill, Mycologia 5: 221. 1913.

Tricholoma secedifolium Murrill, Mycologia 5: 223. 1913.

Pileus convex to plane or slightly depressed, scattered, 12–20 cm. or more broad; surface dry, silky-fibrillose, with more or less conspicuous, minute, avellaneous to murinous, rarely fuliginous, floccose-imbricate, often evanescent scales, paler toward the margin; context with farinaceous odor and taste; lamellae sinuate, seceding, triangular, ventricose, not crowded, white, becoming rosy-isabelline on drying; spores broadly ellipsoid, smooth, hyaline, 7–8.5 ×5–6 μ; stipe enlarged below, crooked, fleshy, solid, scabrous, white, reaching 13 cm. long and 2.5 cm. thick.

TYPE LOCALITY: Salem, Oregon.
HABITAT: On the ground among humus in woods.
DISTRIBUTION: Oregon.

109. **Melanoleuca Yatesii** Murrill, sp. nov.

Pileus regular, convex, solitary, 5–8 cm. broad; surface smooth, glabrous, viscid, sulfur-yellow, becoming brownish at the center on drying, margin concolorous, entire, incurved on drying; context rather thin, white to pale-yellow; lamellae sinuate-adnexed, rather broad, ventricose, not crowded, apparently pale-yellow when fresh, somewhat discolored on drying; spores ellipsoid, smooth, hyaline, 5×3 μ; stipe equal, shining, subglabrous, sulfur-yellow, becoming nearly white when dry, 6–10 cm. long, 8–12 mm. thick.

Type collected under Monterey cypress and eucalyptus trees on the campus of the University of California at Berkeley, California, January 24, 1913, *H. S. Yates 8*.
DISTRIBUTION: Known only from the type locality.

110. **Melanoleuca dryophila** Murrill, Mycologia 5: 217. 1913.

Tricholoma dryophilum Murrill, Mycologia 5: 223. 1913.

Pileus convex, gibbous, becoming almost expanded, scattered, 3–10 cm. broad; surface glabrous, viscid when fresh, subshining, nearly smooth, whitish, stained with rusty-brown,

margin paler, somewhat lobed or irregular; context white, with farinaceous taste and odor; lamellae deeply sinuate to adnexed, close, narrow, plane, white, scarcely changing on drying; spores globose, smooth, hyaline, 5–8 μ; stipe cylindric or slightly flattened, scarcely enlarged below, glabrous, nearly smooth, whitish or brownish, solid, 6–8 cm. long, 1–3 cm. thick.

TYPE LOCALITY: Stanford University, California.
HABITAT: In soil under live oaks.
DISTRIBUTION: Known only from the type locality.

111. **Melanoleuca arenicola** Murrill, Mycologia 5: 214. 1913.

Tricholoma arenicola Murrill, Mycologia 5: 223. 1913.

Pileus convex to subexpanded, umbonate, terraced, reaching 10–12 cm. broad; surface smooth, glabrous, ferruginous, apparently viscid when fresh, bringing up adhering particles of sand; context mild to the taste, but with a strong, unpleasant odor; lamellae sinuate, ventricose, crowded, pallid, becoming discolored with subferruginous blotches; spores ellipsoid, smooth, hyaline, abundant, about 5–6×3–4 μ; stipe long, slightly attenuate downward, fleshy, white, glabrous, except for a few fibrils where the margin of the pileus rested against it, reaching 10 cm. long and 2 cm. thick.

TYPE LOCALITY: Newport, Oregon.
HABITAT: In deep, pure sand in pine barrens.
DISTRIBUTION: Known only from the type locality.

112. **Melanoleuca subannulata** (Peck) Murrill.

Armillaria subannulata Peck, Bull. Torrey Club 36: 330. 1909.
Melanoleuca californica Murrill, Mycologia 5: 216. 1913.
Tricholoma californicum Murrill, Mycologia 5: 223. 1913.

Pileus convex to subplane, rather thick at the center, gregarious, reaching 15 cm. broad; surface smooth, glabrous, evidently viscid when fresh, bringing up adhering particles of soil, reddish-brown at the center, much paler at the margin, which is thin, entire and inflexed on drying; context white, rather thick at the center, thinning out toward the margin, slightly bitter to the taste, odor musty; lamellae quite narrow, less than the thickness of the context, sinuate to adnexed, plane, crowded, white, scarcely changing color on drying; spores broadly ellipsoid, smooth, hyaline, 5–7×4–5 μ; stipe very long, subequal, smooth, glabrous, white, solid, 10–15 cm. long, reaching 3 cm. thick.

TYPE LOCALITY: Claremont, California.
HABITAT: Under oaks or in cultivated fields.
DISTRIBUTION: California and Nevada.

113. **Melanoleuca subpessundata** Murrill, Mycologia 5: 222. 1913.

Tricholoma subpessundatum Murrill, Mycologia 5: 223. 1913.

Pileus becoming plane or slightly depressed, usually with a conic or rounded umbo, gregarious, reaching 6.5 cm. broad; surface dry or slightly viscid, subglabrous, latericious, bay on the umbo, usually smooth, varying at times to radiate-rimose and imbricate-squamulose except on the umbo; context with a farinaceous odor and taste; lamellae sinuate, usually with a decurrent tooth, ventricose, broad, not crowded, pale-rosy-isabelline, the edges often notched; spores globose to subglobose, smooth, hyaline, uninucleate, 6–7 μ; stipe slender, equal or enlarged below, smooth, pale-rosy-isabelline, glabrous above, decorated below with scattered, latericious fibrils, fleshy, solid or hollow, 7–9 cm. long, 7–10 mm. thick.

TYPE LOCALITY: Glen Brook, Oregon.
HABITAT: In soil in woods.
DISTRIBUTION: Oregon and California.

114. **Melanoleuca avellaneifolia** Murrill, Mycologia 5: 215. 1913.

Tricholoma avellaneifolium Murrill, Mycologia 5: 223. 1913.

Pileus fleshy, rather thick, convex to expanded, gibbous, subcespitose, reaching 9 cm. broad; surface polished, smooth, somewhat viscid, dull-blackish-fuliginous, margin entire, concolorous, inflexed on drying; lamellae sinuate, ventricose, several times inserted, not crowded, pale-

avellaneous; spores subglobose, smooth, hyaline, granular, about 5.5–6.5 μ; stipe equal, fleshy, solid, smooth, glabrous, pure-white, about 8 cm. long, 1.5 cm. thick.

TYPE LOCALITY: Mill City, Oregon.
HABITAT: In soil in woods.
DISTRIBUTION: Known only from the type locality.

115. **Melanoleuca subisabellina** Murrill, Mycologia **3**: 194. 1911.

Tricholoma subisabellinum Murrill, Mycologia **4**: 332. 1912.

Pileus irregular, convex to infundibuliform, gregarious, 4–8 cm. broad; surface glabrous, dull-colored, dingy-isabelline, margin undulate or slightly lobed, inflexed; lamellae sinuate, straight, narrow, rather close, white to dirty-brownish; spores ellipsoid, hyaline, echinulate, 5×3.5 μ; stipe curved, tapering toward the base, glabrous, fleshy, white, 3 cm. long, 3–10 mm. thick.

TYPE LOCALITY: Castleton Gardens, Jamaica.
HABITAT: On a waste heap of earth and vegetable refuse.
DISTRIBUTION: Known only from the type locality.

116. **Melanoleuca dichropus** (Fries) Murrill, Mycologia **3**: 193. 1911.

Agaricus (*Tricholoma*) *dichropus* Fries, Nova Acta Soc. Sci. Upsal. III. **1**: 22. 1851.

Pileus fleshy, firm but not thick, expanded, obtuse, often depressed, 5 cm. or more broad; surface moist at first then dry, smooth, glabrous, purplish-lilac, paler toward the margin; lamellae adnexed, subdistant, white, unchanging; spores hyaline; stipe attenuate above, concolorous, apex abruptly white, solid, 5 cm. or more long, 4 mm. thick at the apex, 6 mm. thick at the base; veil obsolete.

TYPE LOCALITY: Island of St. Thomas.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

117. **Melanoleuca jalapensis** Murrill, Mycologia **3**: 194. 1911.

Tricholoma jalapense Murrill, Mycologia **4**: 332. 1912.

Pileus convex, much split at the margin, solitary, 4 cm. broad; surface dry, glabrous, shining, more or less radiate-rimose, the castaneous cuticle remaining entire at the center but almost disappearing near the margin, where it persists in faint streaks or patches; context thin, white, sweet; lamellae adnate with a slight sinus, narrow, rather close, cremeous, pruinose under a lens; spores globose, smooth, hyaline, 5 μ; stipe cylindric, equal, glabrous, white, with a tough rind, 4 cm. long, 7 mm. thick, abruptly bulbous at the base as in some species of *Cortinarius*.

TYPE LOCALITY: Jalapa, Mexico.
HABITAT: Rich soil in a moist virgin forest.
DISTRIBUTION: Known only from the type locality.

118. **Melanoleuca jamaicensis** Murrill, Mycologia **3**: 194. 1911.

Tricholoma jamaicense Murrill, Mycologia **4**: 332. 1912.

Pileus umbilicate, solitary, 2–3 cm. broad; surface glabrous, latericious-fulvous; lamellae sinuate with a decurrent tooth, latericious, broad, rather distant; spores globose, smooth, hyaline, 3–4 μ; stipe slender, cylindric, equal, glabrous, concolorous with the surface of the pileus, 4 cm. long, 2.5 mm. thick, the apex much enlarged, 5 mm. thick, stramineous and tomentose.

TYPE LOCALITY: Morce's Gap, Jamaica.
HABITAT: On the ground under tree-ferns.
DISTRIBUTION: Known only from the type locality.

119. **Melanoleuca holoporphyra** (Berk. & Curt.) Murrill, Mycologia **3**: 193. 1911.

Agaricus (*Clitocybe*) *holoporphyrus* Berk. & Curt. Jour. Linn. Soc. **10**: 284. 1868.

Pileus convex, 6 cm. broad; surface latericious, dry, finely tomentose, slightly striate on the margin; lamellae sinuate with a decurrent tooth, broad, distant, testaceous; spores ovoid,

smooth, hyaline, 9–12×4–7 μ; stipe equal, pale-purple, glabrous, hollow, with a fibrous-looking rind, 6 cm. long, 1 cm. thick.

TYPE LOCALITY: Cuba.
HABITAT: Rotten logs in woods and rich soil in coffee plantations.
DISTRIBUTION: Mexico and Cuba.

DOUBTFUL SPECIES

Agaricus (*Tricholoma*) *consobrinus* Berk. & Mont.; Mont. Syll. Crypt. 99. 1856. Described from specimens collected by Sullivant on dead wood near Columbus, Ohio. Two sporophores are preserved in the Montagne Herbarium in Paris, but they give very little idea of what the species must have been when fresh. The spores of these type specimens are ellipsoid, smooth, hyaline, granular, 7×5.5 μ. The species is described as umbonate, 10–13 cm. broad, with pale-lilac surface, broad and crowded lamellae, and a subbulbous stipe 7–9 cm. long and reaching 2 cm. thick. This would call for a plant resembling *Collybia platyphylla*, but the surface of that species could hardly be described as pale-lilac.

Agaricus (*Tricholoma*) *mucifer* Berk. & Mont.; Mont. Syll. Crypt. 99. 1856. Described from Ohio and evidently near *Melanoleuca transmutans*. See note in Mycologia for March, 1914.

Agaricus (*Tricholoma*) *reticulatus* Johnson, Bull. Minn. Acad. **1**: 354. 1880. Described from plants collected in woods on Nicollet Island, Michigan. Pileus reddish, viscid, reticulate, 4 cm. broad; lamellae white; stipe bulbous, radicate, white. The types no longer exist.

44. CORTINELLUS Roze, Bull. Soc. Bot. Fr. **23**: 50. 1876.

Fleshy, putrescent, solitary or gregarious, rarely cespitose, wood-loving or terrestrial; surface dry, conspicuously decorated with fibrils or scales, usually bright-colored; context usually thick; lamellae sinuate or adnexed; spores hyaline, usually ellipsoid and smooth; stipe central or slightly eccentric, fleshy; veil remaining as a vestiture on the pileus.

Type species, *Agaricus vaccinus* Schaeff.

Plants growing on decayed wood.	
Pileus yellow or yellowish, the scales brownish.	
Lamellae and context white.	1. *C. decorosus.*
Lamellae and context yellow.	2. *C. decorus.*
Pileus some shade of red or purple, sometimes yellowish with age; stipe concolorous.	
Pileus dark-red or purple; lamellae white to yellow.	3. *C. rutilans.*
Pileus bright-reddish-cinnamon; lamellae light-chestnut-colored.	4. *C. cinnamomeus.*
Pileus white or pale-brown.	
Pileus white, with dark-umbrinous, floccose fibrils.	5. *C. Glatfelteri.*
Pileus pale-brown, with brown, fasciculate hairs.	6. *C. hirtellus.*
Plants growing in the soil.	
Pileus white, 10 cm. or more broad.	7. *C. grandis.*
Pileus gray or grayish-brown, reaching 7.5 cm. broad.	8. *C. multiformis.*
Pileus some shade of red or reddish-brown.	
Spores globose or subglobose, 3.5–6 μ.	
Pileus and lamellae pale with a reddish tint.	9. *C. subrufescens.*
Pileus reddish-brown; lamellae sordid-white to bay.	10. *C. mutifolius.*
Spores ellipsoid, 5–7×4–6 μ; lamellae becoming reddish-spotted.	11. *C. vaccinus.*

1. Cortinellus decorosus (Peck) Murrill.

Agaricus (*Tricholoma*) *decorosus* Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 42. 1873.

Pileus firm, at first hemispheric, then convex or nearly plane, often cespitose, 2.5–5 cm. broad; surface adorned with numerous brownish, subsquarrose, tomentose scales, dull-ochraceous or tawny; context white; lamellae close, rounded and slightly emarginate behind, the edges subcrenulate; spores broadly ellipsoid, 5×3.7 μ; stipe solid, equal or slightly tapering upward, white and smooth at the top, elsewhere tomentose-squamulose and concolorous, 5–10 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On rotten logs in woods.
DISTRIBUTION: New York.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **25**: *pl. 1, f. 1–4.*

2. **Cortinellus decorus** (Fries) P. Karst. Hattsv. **1**: 25. 1879.

Agaricus flavovirens Fries, Obs. Myc. **1**: 25. 1815. Not *A. flavovirens* Pers. 1801.
Agaricus decorus Fries, Syst. Myc. **1**: 108. 1821.
Agaricus (*Tricholoma*) *multipunctus* Peck, Bull. N. Y. State Mus. **5**: 73. 1899.
Pleurotus decorus Sacc. Syll. Fung. **5**: 342. 1887.

Pileus thin, rather tough, convex becoming plane or slightly depressed, subexpanded, 7 cm. or more broad; surface moist, melleous, sometimes tinged with flavous, fuliginous at the center, dotted with minute, brownish or blackish, hairy squamules, margin incurved; context yellow, watery, mild, insipid; lamellae adnate to slightly sinuate, crowded, arcuate, cremeous-flavous; spores subglobose, smooth, hyaline, 5–6×4–5 μ; stipe equal, often curved, stuffed or hollow, melleous, fibrillose or squamulose, especially above, rarely glabrous, sometimes eccentric, 2.5–6 cm. long, 4–6 mm. thick.

TYPE LOCALITY: Smoland, Sweden.
HABITAT: Decaying trunks of coniferous trees.
DISTRIBUTION: Temperate North America; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 60, f. 1.*

3. **Cortinellus rutilans** (Schaeff.) P. Karst. Hattsv. **1**: 24. 1879.

? *Agaricus variegatus* Scop. Fl. Carn. ed. 2. **2**: 434. 1772.
Agaricus rutilans Schaeff. Fung. Bavar. **4**: 5. 1774.
Tricholoma rutilans Quél. Champ. Jura Vosg. 40. 1872.

Pileus fleshy, campanulate, becoming plane, 5–10 cm. broad; surface dry, at first covered with a dark-red or purplish tomentum, then somewhat squamulose, sometimes yellowish with age, margin thin, at first involute; context yellow, taste mild, odor none; lamellae crowded, rounded, white to yellow, thickened and more or less villose and serrulate on the edges; spores globose or subglobose, 6–7.5×6–6.5 μ; stipe somewhat hollow, nearly equal or slightly thickened or bulbous at the base, soft, pale-yellow variegated with red or purplish, floccose squamules, 5–10 cm. long, 10–16 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: On or about old stumps in coniferous or mixed woods.
DISTRIBUTION: Maine to North Carolina and west to Colorado and Washington; also in Europe.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 29, f. 4–8;* Cooke, Brit. Fungi *pl. 89 (74);* Gill. Champ. Fr. *pl. 69 (697);* Lanzi, Funghi Mang. *pl. 106, f. 1;* Lucand, Champ. Fr. *pl. 54;* Sow. Engl. Fungi *pl. 31.*
EXSICCATI: Herpell, Präp. Hutpilze *96;* Sydow, Myc. Mar. *3307.*

4. **Cortinellus cinnamomeus** Murrill, sp. nov.

Pileus firm, thin, convex to expanded, obtuse, cespitose, 3–7 cm. broad; surface bright-reddish-cinnamon, dry, imbricate-squamose, scales linear-appressed, acute, margin fimbriate; lamellae broadly adnexed, crowded, narrow, thin, light-chestnut-colored; spores subglobose, colorless, about 7×6 μ; stipe cylindric, hirsute-squamulose, concolorous or slightly paler, hollow, 3–6 cm. long, 4–8 mm. thick.

Type collected on rotten pine wood at Biloxi, Mississippi, September, 1904, *Mrs. F. S. Earle 65.*
DISTRIBUTION: Known only from the type locality.

5. **Cortinellus Glatfelteri** Murrill, sp. nov.

Pileus thin, broadly convex, never fully expanded, wood-loving, reaching 6 cm. broad; surface dry, smooth, white, clothed with dark-umbrinous, stellate, floccose fibrils, which are denser in certain spots and produce an illusive effect as though the surface were undulate; margin very thin, slightly paler; context thin, white, odor strong, unpleasant, taste sweet; lamellae adnate or slightly sinuate, pallid, not becoming darker with age, crowded, rather narrow; spores pure-white in mass, ellipsoid, densely and minutely nodulose, 6–7×3–4 μ; stipe somewhat eccentric at times, subequal, longitudinally striate, subconcolorous, minutely hispid to subglabrous, solid, firm, rather tough, about 4 cm. long, 5 mm. thick.

Type collected on a rotting trunk in St. Louis County, Missouri, July 10, 1902, *N. M. Glatfelter 872.*
DISTRIBUTION: Known only from the type locality.

6. **Cortinellus hirtellus** (Peck) Murrill.

Tricholoma hirtellum Peck, Bull. N. Y. State Mus. 116: 38. 1907.

Pileus fleshy, thin, convex, subumbonate, solitary or cespitose, 2.5–4 cm. broad; surface pale-brown, dry, hairy, the hairs sometimes minutely fasciculate; context white, taste mild; lamellae thin, narrow, close, slightly sinuate-adnexed, minutely floccose on the edges, yellowish-white or pallid; spores subglobose, 6–7.5×5–6 μ; stipe slender, equal, stuffed or hollow, with a very small cavity, fibrillose or subsquamulose, concolorous or a little paler, 2.5–4 cm. broad, 4–6 mm. thick.

TYPE LOCALITY: Wading River, Suffolk County, New York.
HABITAT: On or about pine stumps.
DISTRIBUTION: New York, New Jersey, and Alabama.
ILLUSTRATIONS: Bull. N. Y. State Mus. 116: *pl. 105, f. 1–5.*

7. **Cortinellus grandis** (Peck) Murrill.

Tricholoma grande Peck, Ann. Rep. N. Y. State Mus. 44: 128. 1892.

Pileus thick, firm, hemispheric becoming convex, often irregular, frequently cespitose, 10–12.5 cm. broad; surface dry, brownish-squamulose, somewhat silky-fibrillose toward the margin, white, margin at first involute, pure-white; context grayish-white, taste farinaceous; lamellae close, rounded behind, adnexed, somewhat lacerate, white; spores ellipsoid, 8.5–11×6 μ; stipe stout, solid, fibrillose, at first tapering upward, then equal or but slightly thickened at the base, pure-white, 5–10 cm. long, 2.5–4 cm. thick.

TYPE LOCALITY: Cattaraugus County, New York.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **44**: *pl. 3, f. 5–8.*

8. **Cortinellus multiformis** (Schaeff.) Murrill.

Agaricus multiformis Schaeff. Fung. Bavar. 4: 9. 1774.
Agaricus terreus Schaeff. Fung. Bavar. 4: 28. 1774.
Agaricus argyraceus Bull. Herb. Fr. *pl. 423, f. 1.* 1788.
Tricholoma terreum Quél. Champ. Jura Vosg. 42. 1872.
Cortinellus terreus P. Karst. Hattsv. 1: 25. 1879.

Pileus fleshy, thin, soft, convex, campanulate, or nearly plane, obtuse or umbonate, at times gregarious to cespitose, 2.5–7.5 cm. broad; surface innately fibrillose or floccose-squamose, cinereous-fuscous, grayish-brown, or mouse-colored; context white or whitish, sometimes with a farinaceous odor; lamellae adnexed, subdistant, more or less eroded on the edges, white becoming cinereous; spores broadly ellipsoid, 6–7×4–5 μ; stipe equal, varying from solid to stuffed or hollow, fibrillose, white or whitish, 2.5–5 cm. long, 4–8 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: On the ground in woods or groves.
DISTRIBUTION: Temperate regions of the world.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **49**: *pl. 47, f. 1–10;* Barla, Champ. Nice *pl. 36, f. 1–3;* Cooke, Brit. Fungi *pl. 50 (83);* Gill. Champ. Fr. *pl. 73 (704);* Hard, Mushrooms *f. 55;* Sow. Engl. Fungi *pl. 76.*
EXSICCATI: Herpell, Präp. Hutpilze *6;* Clements, Crypt. Form. Colo. *174;* Ellis & Ev. Fungi Columb. *1983;* Ellis & Ev. N. Am. Fungi *2726;* Krieger, Fungi Sax. *486.*

9. **Cortinellus subrufescens** (Ellis & Ev.) Murrill.

Tricholoma subrufescens Ellis & Ev. Proc. Acad. Nat. Sci. Phila. **1893**: 440. 1893.

Pileus fleshy, convex-plane, 4–5 cm. broad; surface pale with a reddish tint, the center darker, innate-fibrillose, squamose, not viscid, margin thin; context white; lamellae heterophyllous, rounded behind, subcrowded, flesh-colored with a reddish tint, 2–3 mm. broad; spores hyaline, subglobose, 3.5 μ; stipe attenuate above, subsquamulose, subconcolorous, fibrous, becoming hollow, 8 cm. long, 1 cm. thick.

TYPE LOCALITY: New Jersey.
HABITAT: Mixed woods among fallen leaves.
DISTRIBUTION: New Jersey.

10. **Cortinellus mutifolius** Murrill, sp. nov.

Pileus convex to expanded, subumbonate, solitary or gregarious, 4–8 cm. broad; surface dry, reddish-brown, decorated with rather conspicuous innate scales, margin smooth, entire, concolorous; context watery-brown, unchanging, taste mild, odor not characteristic; lamellae slightly sinuate, subcrowded, of medium breadth, somewhat undulate on the edges, sordid-white, bay in dried specimens; spores globose, smooth, hyaline, granular, 4–6 μ; stipe long and rather thick, subequal, usually tapering downward, whitish above, dull-reddish-brown below, smooth, fibrillose, spongy within, 6–10 cm. long, 1–1.5 cm. thick.

Type collected on the ground in moist woods near Auburn, Alabama, January 5, 1901, *Mr. & Mrs. F. S. Earle.*

DISTRIBUTION: Known only from the type locality.

11. **Cortinellus vaccinus** (Schaeff.) Roze, Bull. Soc. Bot. Fr. **23**: 50. 1876.

Agaricus vaccinus Schaeff. Fung. Bavar. 4: 13. 1774.
Tricholoma vaccinum Quél. Champ. Jura Vosg. 42. 1872.

Pileus fleshy, convex or campanulate, becoming nearly plane, usually umbonate, gregarious, 2.5–7.5 cm. broad; surface dry, floccose-squamose, reddish-brown, innate-fibrillose and rimose at times, cuticle bay when young, at length light-bay at the center and avellaneous-isabelline on the marginal zone, margin involute, tomentose; context white, taste farinaceous; lamellae sinuate-adnexed, subdistant, whitish to reddish or reddish-spotted; spores subglobose to broadly ellipsoid, smooth, hyaline, 5–7×4–6 μ; stipe equal, hollow, covered with a fibrillose bark, naked at the apex, whitish-rufescent to bay, 5–9 cm. long, 8–12 mm. thick.

TYPE LOCALITY: Bavaria.
HABITAT: On the ground under conifers.
DISTRIBUTION: Canada to North Carolina and west to Washington and Oregon.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 34, f. 8–13;* Batsch, Elench. Fung. *pl. 116;* Dufour, Atl. Champ. *pl. 13, f. 21;* Gill. Champ. Fr. *pl. 70 (707).*
EXSICCATI: Thüm. Myc. Univ. *602;* Sydow, Myc. Mar. *3406;* D. Sacc. Myc. Ital. *202;* Herpell, Präp. Hutpilze *5.*

45. **PLEUROTUS** (Fries) Quél. Champ. Jura Vosg. 77. 1872.

Agaricus § *Pleurotus* Fries, Syst. Myc. **1**: 178. 1821.

Pileus putrescent, solitary or cespitose, fleshy, somewhat irregular; lamellae decurrent; spores hyaline; stipe more or less eccentric, firm, fleshy or woody; veil well developed, forming an annulus.

Type species, *Pleurotus corticatus* (Fries) Quél.

1. **Pleurotus dimidiatus** (Schaeff.) Murrill.

Agaricus dimidiatus Schaeff. Fung. Bavar. 4: 57. 1774.
Agaricus dryinus Pers. Comment. Schaeff. 96. 1800.
Agaricus corticatus Fries, Obs. Myc. **1**: 92. 1815.
Pleurotus corticatus Quél. Champ. Jura Vosg. 77. 1872.
Pleurotus dryinus Quél. Champ. Jura Vosg. 77. 1872.
Agaricus (*Pleurotus*) *subareolatus* Peck, Ann. Rep. N. Y. State Mus. **30**: 39. 1878.
Armillaria dryina P. Karst. Hattsv. **1**: 23. 1879.

Pileus compact, very firm when dry, dimidiate to subcircular, convex to expanded, becoming depressed, solitary to somewhat cespitose, 5–20 cm. broad; surface dry, white to avellaneous, becoming yellow with age, at times tinged with lilac on the disk, densely fibrillose or floccose to squamose; lamellae white, becoming yellow with age, subdistant, decurrent, usually anastomosing behind; spores oblong, smooth, pure-white in mass, unchanging, 9–14×4–6 μ; stipe curved, eccentric, firm, solid, radicate, striate, fibrillose, 2–12 cm. long, 1–3 cm. thick; veil membranous, fugacious, appendiculate, rarely leaving an annulus.

TYPE LOCALITY: Bavaria.
HABITAT: Decayed spots in deciduous trees.
DISTRIBUTION: Canada to North Carolina and west to Washington; also in Europe.
ILLUSTRATIONS: Schaeff. Fung. Bavar. *pl. 233;* Atk. Stud. Am. Fungi *pl. 33, f. 107;* Boudier, Ic. Myc. **1**: *pl. 76;* Cooke, Brit. Fungi *pl. 290;* Pat. Tab. Fung. *pl. 516*; Bres. Funghi Trident. *pl. 80.*

46. **ARMILLARIA** (Fries) Quél. Champ. Jura Vosg. 36. 1872.

Agaricus § *Armillaria* Fries, Syst. Myc. 1: 26. 1821.
Armillariella P. Karst. Acta Soc. Faun. Fl. Fenn. 2: 4. 1881.
Gyrophila Quél. Ench. Fung. 9. 1886.
Mucidula Pat. Hymén. Eur. 95. 1887.
Catathelasma Lovejoy, Bot. Gaz. 50: 383. 1910.

Pileus fleshy, putrescent, solitary to cespitose; lamellae adnate, varying to adnexed or decurrent; spores hyaline; veil usually forming an annulus; stipe central, fleshy, firm, at times fibrous.

Type species, *Armillaria ramentacea* (Bull.) Quél.

Terrestrial species; usually solitary.
  Pileus white or tinged with yellow, the disk often differently colored.
    Spores 4–8 μ long.
      Stipe bulbous; pileus 5–10 cm. broad. 1. *A. appendiculata.*
      Stipe not bulbous; pileus usually 10–15 cm. broad.
        Stipe viscid; spores ellipsoid, 7.5 × 5 μ. 2. *A. viscidipes.*
        Stipe dry; spores globose, 4–6 μ.
          Pileus white or yellowish; growing in humus. 3. *A. magnivelaris.*
          Pileus white with yellow center; growing in sand. 4. *A. arenicola.*
    Spores 10–17 μ long.
      Annulus simple, not embracing base of stipe.
        Stipe short, 2.5–5 cm. 5. *A. macrospora.*
        Stipe long, 5–10 cm. 6. *A. ventricosa.*
      Annulus embracing base of stipe like a volva. 7. *A. evanescens.*
  Pileus whitish to lilac-gray variegated with brown spots; spores subglobose, 7 μ. 8. *A. nardosmia.*
  Pileus distinctly yellowish, yellowish-brown, or tan-colored.
    Pileus 3.5–6 cm. broad; spores 5–9 μ long.
      Surface smooth, not acutely umbonate. 9. *A. albolanatipes.*
      Surface squamose, acutely umbonate. 10. *A. umbonata.*
    Pileus 12–20 cm. broad; spores 12–14 μ long. 11. *A. nobilis.*
Wood-loving species; solitary to cespitose.
Spores 15–20 μ; pileus white to gray. 12. *A. alphitophylla.*
Spores 10 μ or less; pileus not as above.
  Sporophores gregarious; pileus deep-red or chocolate-colored. 13. *A. umbilicata.*
  Sporophores densely cespitose; pileus honey-yellow to reddish-brown. 14. *A. putrida.*

1. **Armillaria appendiculata** Peck, Bull. Torrey Club 24: 140. 1897.

Pileus broadly convex, 5–10 cm. broad; surface glabrous, whitish, often tinged with ferruginous or brownish-ferruginous on the disk; context white or whitish; lamellae close, rounded behind, whitish; spores subellipsoid, 8 × 5 μ; stipe equal above or slightly tapering upward, solid, bulbous, whitish, 4–9 cm. long, 1–2 cm. thick; veil membranous or webby, white, commonly adhering in fragments to the margin of the pileus.

TYPE LOCALITY: Auburn, Alabama.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

2. **Armillaria viscidipes** Peck, Ann. Rep. N. Y. State Mus. 44: 128. 1892.

Pileus fleshy, compact, convex to nearly plane, 7.5–15 cm. broad; surface soft, glabrous or at times slightly innate-fibrillose, whitish with a slight yellowish or reddish-yellow tint, cracking longitudinally at times; context white, odor peculiar, penetrating, subalkaline; lamellae narrow, crowded, sinuate or subdecurrent, whitish; spores ellipsoid, 7.5 × 5 μ; stipe equal, solid, viscid and slightly tinged with yellow below the annulus, whitish above, 7.5–10 cm. long, 12–25 mm. thick; annulus narrow, membranous.

TYPE LOCALITY: Rock City, Dutchess County, New York.
HABITAT: Mixed woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 44: *pl. 2, f. 1–3.*

3. **Armillaria magnivelaris** (Peck) Murrill.

Agaricus (Armillaria) ponderosus Peck., Bull. Buffalo Soc. Nat. Sci. **1**: 42. 1873. Not *A. ponderosus* Pers. 1801.
Agaricus magnivelaris Peck, Ann. Rep. N. Y. State Mus. **29**: 66. 1878.
Armillaria ponderosa Sacc. Syll. Fung. **5**: 78. 1887.

Pileus thick, compact, convex or subcampanulate, 10–13 cm. broad; surface smooth, white or yellowish, margin naked or clothed with the appendiculate veil, strongly involute; context white; lamellae crowded, narrow, slightly emarginate, white inclining to cream-colored; spores nearly globose, 4 μ; stipe stout, subequal, firm, solid, coated by the veil, concolorous, white and furfuraceous above the annulus, 10–13 cm. long, 2.5 cm. thick; veil slightly viscid, long persistent, at length lacerate, adhering in shreds to the margin and the stipe.

TYPE LOCALITY: Copake, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: New York and New England.

4. **Armillaria arenicola** Murrill, Mycologia **4**: 212. 1912.

Pileus firm, fleshy, convex to subplane or slightly depressed, gibbous, gregarious, 12–15 cm. broad; surface dry, smooth, glabrous, white or whitish, cremeous at the center; context coarse, white, tasteless; lamellae adnate, becoming sinuate-adnexed or nearly free, ventricose, plane, close, white, changing to rust-colored when bruised; spores globose, smooth, hyaline, 4–6 μ; stipe equal or tapering downward, dry, smooth below, somewhat scaly above the annulus, white tinged with cremeous, 12 cm. long, 3 cm. thick; annulus ample, persistent, membranous, white, attached just above the middle of the stipe.

TYPE LOCALITY: Newport, Oregon.
HABITAT: In sand-hills among scrubby pines.
DISTRIBUTION: Known only from the type locality.

5. **Armillaria macrospora** Peck, Bull. Torrey Club **27**: 610. 1900.

Pileus fleshy, fragile, convex, solitary or cespitose, 5–20 cm. broad; surface glabrous, viscid when moist, shining when dry, white, sometimes brown in the center; context white; lamellae rather narrow, close, decurrent, white; spores oblong or subfusiform, 12–15 × 6–8 μ; stipe short, stout, subequal, white, 2.5–5 cm. long, 1.2–2 cm. thick; annulus thick, white.

TYPE LOCALITY: Colorado.
HABITAT: Dense spruce woods.
DISTRIBUTION: Known only from the type locality.

6. **Armillaria ventricosa** Peck, Bull. Torrey Club **34**: 104. 1907.

Lentinus ventricosus Peck, Bull. Torrey Club **23**: 414. 1896.

Pileus fleshy, convex or nearly plane above, 8–15 cm. broad; surface glabrous, shining, white, margin thin, involute; context white or whitish; lamellae narrow, close, decurrent, sometimes dentate or denticulate on the edges, whitish; spores 10–12 × 5–6 μ; stipe short, thick, ventricose, solid or sometimes hollow through erosion by insects, abruptly narrowed at the base, annulate, white or whitish, 5–10 cm. long, 1.5–2.5 cm. thick.

TYPE LOCALITY: Tacoma Park, Washington, D. C.
HABITAT: On the ground in pine woods.
DISTRIBUTION: Alabama and District of Columbia.

7. **Armillaria evanescens** (Lovejoy) Murrill.

Catathelasma evanescens Lovejoy, Bot. Gaz. **50**: 384. 1910.

Pileus broadly convex to nearly plane, solitary, 13 cm. broad; surface smooth, damp, white, deep-cream in the center, becoming rich-ocher with a reddish tint when dried, margin entire; context whitish, compact, thick at the center, thinner near the margin; lamellae very decurrent, short ones intermixed with long ones, white, 2–3 cm. wide near the margin of the

pileus, becoming narrow near and on the stipe, subdistant, edges acute; spores ellipsoid to fusiform, smooth, hyaline, 14–17.5×3–5 μ; stipe very short, thick, fleshy, hollow, smooth, white, becoming rich-ocher tinged with reddish when dried, 4 cm. thick; veil large, white, smooth, opening around the top leaving a thick, even, white margin, persistent and closely embracing the base of the stipe.

TYPE LOCALITY: Brooklyn Lake, Snowy Range, Wyoming, 3500 m. elevation.
HABITAT: Open balsam and spruce woods, occurring singly in sod on thick humus.
DISTRIBUTION: Known only from the type locality.

8. **Armillaria nardosmia** (Ellis) Sacc. Syll. Fung. **5**: 86. 1887.

Agaricus nardosmius Ellis, Bull. Torrey Club 6: 75. 1876.

Pileus fleshy, firm, solitary, 6–9 cm. broad; surface fibrillose, whitish to lilac-avellaneous, variegated with brown spots, especially near the center; cuticle thick, tough, separable; context white, thick and compact on the disk, thin toward the margin, odor aromatic; lamellae crowded, subventricose, slightly emarginate, whitish; spores subglobose, 7 μ; stipe solid, fibrous, not bulbous, sheathed below by the brown, velvety veil, 7 cm. long, 1–3 cm. thick; annulus narrow, spreading, uneven on the edge.

TYPE LOCALITY: New Jersey.
HABITAT: Ground in oak or mixed woods.
DISTRIBUTION: Eastern United States, New York to Virginia.
ILLUSTRATION: Hard, Mushrooms *f. 42.*
EXSICCATI: Ellis & Ev. Fungi Columb. *1401.*

9. **Armillaria albolanatipes** Atk. Ann. Myc. **6**: 54. 1908.

Pileus convex to expanded, umbonate, solitary or rarely gregarious, 5–6 cm. broad; surface viscid, yellowish to yellowish-brown, darker in the center, margin thin, slightly repand, smooth; context very fragile when dry; lamellae thin, sinuate-adnexed, white to pale-yellowish, subdistant; spores subellipsoid, smooth, hyaline, 6–9×4–5 μ; stipe straight, even, solid, white, coarsely floccose, woolly up to the veil, smooth above, 6–8 cm. long, 8–10 mm. thick; veil present when young, persisting as a not very prominent annulus.

TYPE LOCALITY: Corvallis, Oregon.
HABITAT: Among leaves in mixed woods.
DISTRIBUTION: Oregon, California.

10. **Armillaria umbonata** (Sumstine) Murrill.

Vaginata umbonata Sumstine, Mycologia **6**: 35. 1914.

Pileus thin, convex or expanded, distinctly conically umbonate, 3.5–5 cm. broad; surface smooth, tan-colored, covered with darker, triangular scales arranged in somewhat concentric zones; lamellae 3–5 mm. broad, ventricose, sinuate, adnexed; spores ovoid to ellipsoid, 5–7 μ; stipe solid, equal, concolorous, with a long bulbous root, 9–12 cm. long; veil at length fimbriate, adhering closely to the stipe below, suggesting a volva.

TYPE LOCALITY: Ohiopyle, Pennsylvania.
HABITAT: In sandy soil.
DISTRIBUTION: Pennsylvania.

11. **Armillaria nobilis** Murrill.

Agaricus imperialis Fries; Lund, Consp. Hymen. Holm. 5. 1845. Not *A. imperialis* Batsch, 1783.
Armillaria imperialis Quél. Champ. Jura. Vosg. 37. 1772.
Mastoleucomyces imperialis O. Kuntze, Rev. Gen. **2**: 861. 1891.

Pileus compact, convex to expanded, obtuse, at times slightly depressed, large and striking in appearance, solitary, 11–16 cm. broad and 6–8 cm. thick; surface fuscous-brown, variegated with appressed, obscure scales, especially toward the center, margin glabrous, somewhat striate, subentire, thick, concolorous; context very thick, white; lamellae narrow, white, long-decurrent, several times inserted, subcrowded; spores smooth, hyaline, subfusiform, 12–14×5–6 μ; stipe subequal, solid, whitish to subconcolorous, subsquamose below the annulus, 11–14 cm. long, about 4 cm. thick; veil ample, membranous, sheathing the base of the stipe and

forming an inferior, double, persistent annulus, which is whitish on its inner surface and fulvous without.

TYPE LOCALITY: Sweden.
HABITAT: Dry soil under conifers.
DISTRIBUTION: Eastern Canada and northern New England; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 17;* Barla, Champ. Alpes Marit. *pl. 20, f. 1–3;* Gill. Champ. Fr. *pl. 55 (35).*

12. **Armillaria alphitophylla** (Berk. & Curt.) Murrill.

Agaricus (Mycena) alphitophyllus Berk. & Curt. Proc. Am. Acad. **4**: 112. 1860.
Agaricus (Mycena) leucoconis Berk. & Curt. Proc. Am. Acad. **4**: 113. 1860.
Agaricus (Amanita) cubensis Berk. & Curt. Jour. Linn. Soc. **10**: 282. 1868.
Agaricus (Armillaria) cheimonophyllus Berk. & Curt. Jour. Linn. Soc. **10**: 284. 1868.
Mucidula cheimonophylla Pat. Bull. Soc. Myc. **15**: 192. 1899.
Chamaemyces alphitophyllus Murrill, Mycologia **3**: 91. 1911.

Pileus toughish, drying easily, convex to plane or depressed, very variable, solitary, 3–15 cm. broad; surface varying from subglabrous to fibrillose or squamose, and from white or whitish to avellaneous or rarely to isabelline, the disk dark-avellaneous, fuliginous, or at times rosy-isabelline; margin thin, entire, even, or at times striate or plicate; context thin, white; lamellae pure-white, ventricose, rounded-adnate with a decurrent tooth, somewhat mucilaginous and sticking together in a peculiar way when young; spores globose, smooth, hyaline, 16–20 μ; cystidia abundant, protruding, ventricose, tapering at both ends, 100–200×25–40 μ; stipe cylindric and equal above, somewhat enlarged below, white to pale-avellaneous, glabrous, furfuraceous, or somewhat roughened with erect scales, solid, fleshy with a tough rind, 4–6 cm. long, 4–8 mm. thick; veil small, soon appendiculate, not forming a distinct annulus.

TYPE LOCALITY: Bonin Islands.
HABITAT: Exposed hardwood logs and decayed spots in standing trunks.
DISTRIBUTION: Louisiana, Mexico, West Indies; also in the Bonin Islands and Tonkin.

13. **Armillaria umbilicata** Pat. Bull. Soc. Myc. Fr. **15**: 191. 1899.

Pileus fleshy, soft, convex to plane and depressed, more or less umbilicate, gregarious, 1–5 cm. broad; surface moist, smooth, viscid, deep-red or chocolate-colored, paler with age, becoming rusty or whitish, margin not striate; lamellae adnate-decurrent, straight, thin, serrate, whitish, then rusty or brownish; spores ovoid, smooth, colorless, 6–7×3 μ; stipe central, coriaceous, becoming hard and woody, cylindric, equal, fibrillose throughout, pale-rusty, 5–6 cm. long, 3–5 mm. thick; annulus apical, fugacious, fibrillose-membranous.

TYPE LOCALITY: Guadeloupe.
HABITAT: On rotten trunks of *Sloanea Massoni.*
DISTRIBUTION: Known only from the type locality.

14. **Armillaria putrida** (Scop.) Murrill.

Agaricus putridus Scop. Fl. Carn. ed. 2. **2**: 420. 1772.
Agaricus melleus Vahl, Fl. Dan. 9. 1792. Not *A. melleus* Schaeff. 1774.
Agaricus polymyces Pers. Syn. Fung. 269. 1801.
Agaricus (Armillaria) melleorubens Berk. & Curt. Jour. Linn. Soc. **10**: 283. 1868.
Armillaria mellea Quél. Champ. Jura Vosg. 38. 1872.
Armillaria solidipes Peck, Bull. Torrey Club **27**: 611. 1900.

Pileus convex to expanded, cespitose, 4–12 cm. broad, very variable; surface usually dry, smooth or becoming striate toward the margin, pale-honey-yellow to dark-reddish-brown, usually adorned with minute tufts of brown or blackish hairs, which are more abundant on the disk; context white or whitish, somewhat acrid and unpleasant to the taste; lamellae adnate or decurrent, white or whitish, becoming discolored or spotted with age, rarely yellow; spores ellipsoid, smooth, hyaline, 7–10×4–6.5 μ; stipe melleous, reddish-brown or dirty-brown below, paler above, nearly equal, firm, fibrous, spongy within, usually floccose-scaly below the annulus, 4–12 cm. long, 5–15 mm. thick; annulus white, cottony, with dark specks, or thin, arachnoid, and evanescent.

TYPE LOCALITY: Carniola.
HABITAT: On stumps and buried roots of both deciduous and evergreen trees.
DISTRIBUTION: Cosmopolitan.

ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 20;* Barla, Champ. Nice *pl. 21, 22;* Bull. Herb. Fr. *pl. 377, 543;* Fries, Sv. Aetl. Svamp. *pl. 36;* McIlv. Am. Fungi *pl. 16, f. 1;* Mycologia **1**: *pl. 1, f. 2;* Sow. Engl. Fungi *pl. 101;* Vitt. Descr. Funghi Mang. *pl. 3;* Gill. Champ. Fr. *pl. 54* (*36*); Cooke, Brit. Fungi *pl. 32* (*56*).

EXSICCATI: Clements, Crypt. Form. Colo. *173;* Allesch. & Schn. Fungi Bavar. *58, 60;* Rav. Fungi Car. **2**: *1;* Rav. Fungi Am. *407;* Desmaz. Pl. Crypt. *1647;* Herpell, Präp. Hutpilze *4;* Karst. Finl. Fungi *206;* Briosi & Cav. Fung. Par. *166;* Sydow, Myc. Mar. *2, 1408;* Thüm. Fungi Austr. *903;* Roum. Fungi Gall. *4003;* Rab.-Wint. Fungi Eur. *1201;* Ellis & Ev. N. Am. Fungi *3201;* Shear, N. Y. Fungi *102;* D. Sacc. Myc. Ital. *201*.

47. **LIMACELLA** Earle, Bull. N. Y. Bot. Gard. **5**: 447. 1909.

Pileus soft, fleshy, putrescent, decidedly viscid, solitary or gregarious; lamellae free; spores hyaline; veil usually forming an annulus; stipe central, slender, fleshy.

Type species, *Agaricus delicatus* Fries.

Pileus white or pale-yellowish.
  Pileus 1–3 cm. broad, pure-white.
    Stipe 2.5 cm. long. — 1. *L. agricola.*
    Stipe 5–7 cm. long. — 2. *L. albissima.*
  Pileus 3–8 cm. broad.
    Spores 4–5 μ long. — 3. *L. illinita.*
    Spores 9–11 μ long. — 4. *L. bentista.*
Pileus white, fulvous to brownish on the disk. — 5. *L. fulvodisca.*
Pileus cream-colored with rosy tints.
  Pileus 3–4 cm. broad; stipe 4–6 cm. long. — 6. *L. McMurphyi.*
  Pileus 6 cm. broad; stipe 5–10 cm. long. — 7. *L. roseicremea.*
Pileus isabelline to tawny or brownish.
  Pileus 3–4 cm. broad. — 8. *L. glischra.*
  Pileus 5–7.5 cm. broad. — 9. *L. oblita.*

1. **Limacella agricola** Murrill, Mycologia **3**: 81. 1911.

Pileus convex, regular, rather firm for the genus, 2.5 cm. broad; surface smooth, glabrous, slimy, white, with incurved, striate margin; lamellae free, white, broad, unequal; spores subglobose, smooth, pure-hyaline, often uninucleate, 4–5 μ long; stipe cylindric, even, white, glabrous, shining, slightly bulbous at the base, 2.5 cm. long, 2 mm. thick; annulus superior, slight, evanescent.

TYPE LOCALITY: Constant Spring Hotel, near Kingston, Jamaica.
HABITAT: On a lawn.
DISTRIBUTION: Known only from the type locality.

2. **Limacella albissima** Murrill.

Lepiota candida Morgan, Jour. Myc. **12**: 202. 1906. Not *L. candida* Copeland. 1905.

Pileus fleshy, ovoid to convex and expanded, subumbonate, 1–3 cm. broad; surface radiate-fibrillose, smooth, pure-white, covered by a very thin viscous epidermal layer, at first continuous, but with the growth of the pileus drawn apart and left as minute scales upon the surface; context thin, white; lamellae narrow, close, free and rather remote, pure-white; spores oblong-ellipsoid, obliquely apiculate, 5–7 $\times$ 3–4 μ; stipe long, tapering upward from the clavate base, fistulose, silky-fibrillose or quite smooth, pure-white, 5–7 cm. long, 5–6 mm. thick at the base, tapering to 2–3 mm. at the apex; annulus thin, membranous, persistent.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground among old leaves in woods.
DISTRIBUTION: Known only from the type locality.

3. **Limacella illinita** (Fries) Murrill.

Agaricus illinitus Fries, Obs. Myc. **2**: 8. 1818.
Lepiota illinita Quél. Champ. Jura Vosg. 326. 1873.

Pileus rather thin, soft, ovoid to campanulate or expanded, subumbonate, 2.5–6 cm. broad; surface smooth, white or whitish, very viscid or glutinous, striate or at times smooth on the margin; context white, soft, odor farinaceous; lamellae free, crowded, white; spores globose or subglobose, smooth, hyaline, 4–5 $\times$ 3.5–4 μ; stipe equal or slightly tapering upward, viscid, white, stuffed or hollow, 5–9 cm. long, 4–6 mm. thick; annulus a cushion of fibrils usually covered with slime.

TYPE LOCALITY: Sweden.
HABITAT: Grassy woods and fields.
DISTRIBUTION: Northern United States; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 16;* Pat. Tab. Fung. *f. 609;* Gill. Champ. Fr. *pl. 425*.

4. **Limacella bentista** (Morgan) Murrill.

Lepiota bentista Morgan, Jour. Myc. **13**: 14. 1907.

Pileus fleshy, globose to convex and expanded, 5–8 cm. broad; surface viscid, smooth, membranous, whitish or pale-alutaceous; context thin, white; lamellae narrow, close, white, free; spores ovoid-ellipsoid, 9–11×5–6 μ; stipe slightly bulbous at the base, subequal, stuffed, white, smooth but viscid, 6–8 cm. long, 8–12 mm. thick; annulus thin, white, membranous.

TYPE LOCALITY: Blue Mounds, Wisconsin.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

5. **Limacella fulvodisca** (Peck) Murrill, Mycologia **4**: 212. 1912.

Lepiota fulvodisca Peck, Bull. Torrey Club **22**: 198. 1895.

Pileus thin, fragile, convex or nearly plane, obtuse or umbonate, 2.5–4 cm. broad; surface viscid when moist, white, the disk or umbo fulvous or tawny-brown; lamellae free, white, narrow, crowded; spores ovoid-ellipsoid, smooth, hyaline, usually uninucleate, slightly apiculate at one end, 7.5–10×4–5 μ; stipe slender, abruptly bulbous, viscid, white or whitish, hollow, 5–7.5 cm. long, 2–3 mm. thick; annulus thin, membranous, pure-white.

TYPE LOCALITY: Pasadena, California.
HABITAT: Woods or shaded lawns.
DISTRIBUTION: California.

6. **Limacella McMurphyi** Murrill, Mycologia **4**: 213. 1912.

Pileus fleshy, convex, solitary, 3.5–4 cm. broad; surface smooth, glabrous, evidently viscid when fresh, pinkish-cream-colored, not striate; context white, rather thick, with farinaceous taste and odor; lamellae free, crowded, inserted, ventricose, white; spores globose, smooth, hyaline, 3.5–4 μ; stipe slightly tapering upward, subglabrous, even, white, solid, 4–6×0.5–1 cm.; annulus superior, ample, persistent, white.

TYPE LOCALITY: Searsville Lake, California.
HABITAT: Among leaves under redwoods.
DISTRIBUTION: Known only from the type locality.

7. **Limacella roseicremea** Murrill, Mycologia **4**: 212. 1912.

Pileus convex to plane, with a broad umbo, slow to expand, solitary, 6 cm. broad; surface smooth, glabrous, viscid, cream-colored tinged with rose, margin inflexed, not striate; context white, odor farinaceous; lamellae free, rather close, arcuate, white; spores globose, smooth corroded, apparently not maturing, white but not transparent, 4–5 μ; stipe subequal, enlarge, at the base, white, fleshy, solid, smooth, glabrous, viscid, often very long, 5–10 cm. long, 0.8–1.2 cm. thick; veil ample, membranous, persistent, superior, remaining for some time stretched from margin to stipe.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Washington.

8. **Limacella glischra** (Morgan) Murrill.

Lepiota glischra Morgan, Jour. Myc. **12**: 203. 1906.

Pileus fleshy, subovoid to convex and expanded, 3–4 cm. broad; epidermis a thin layer of brown gluten, thickest at the center rendering it darker colored, this glutinous layer being continuous with the marginal veil and running down and enveloping the stipe; context rather thin, white; lamellae broad, close, white, rounded behind, free, approximate; spores globose or ovoid, apiculate, 4–5×4 μ; stipe tapering upward, solid, whitish-fibrillose beneath the brown gluten, 4–6 cm. long, 3–4 mm. thick.

TYPE LOCALITY: Preston, Ohio.
HABITAT: Rich soil in woods.
DISTRIBUTION: Ohio and Tennessee.

9. **Limacella oblita** (Peck) Murrill.

Agaricus (*Lepiota*) *oblitus* Peck, Bull. Buffalo Soc. Nat. Sci. 1: 41. 1873.

Pileus fleshy, convex or expanded, subumbonate, 5–7.5 cm. broad; surface smooth or obscurely spotted or scaly from the rupturing of the universal veil, viscid, alutaceous inclining to tawny, the umbo faintly darker; lamellae free, crowded, whitish or yellowish, some of them forked; spores ellipsoid, smooth, hyaline, 5–6×3–4 μ; stipe equal or slightly tapering upward, smooth at the apex, floccose and viscid below, hollow or stuffed, 5–7 cm. long, about 6 mm. thick; annulus obsolete.

TYPE LOCALITY: Lowville, New York.
HABITAT: Deciduous woods.
DISTRIBUTION: Known only from the type locality.

48. **LEPIOTA** P. Browne; S. F. Gray, Nat. Arr. Brit. Pl. 1: 601. 1821.

Vaginarius Roussel, Fl. Calvados ed. 2 59. 1806. Not *Vaginaria* Rich. 1805.
Fusispora Fayod, Ann. Sci. Nat. VII. 9: 351. 1889.
Mastocephalus Batt.; O. Kuntze, Rev. Gen. 2: 859. 1891.

Pileus soft, fleshy, putrescent, never viscid, usually squamulose or pruinose; lamellae free, rarely varying to adnate; spores hyaline, rarely tinged with yellow or brown; veil present, usually forming an annulus; stipe central, usually hollow and enlarged below; volva none.

Type species, *Agaricus procerus* Scop.

Pileus granulose or verrucose with swollen vesicles. — I. GRANULOSAE.
Pileus pruinose, fibrillose, or pulverulent, rarely glabrous, never granulose nor squamulose. — II. PRUINOSAE.
Pileus conspicuously long-striate, thin, squamulose. — III. STRIATAE.
Pileus squamulose, not conspicuously striate.
  Annulus fixed or evanescent.
    Scales appressed, scattered or imbricate. — IV. SQUAMULOSAE.
    Scales prominent, reflexed or pointed. — V. ACUTESQUAMOSAE.
  Annulus movable, persistent; pileus large with large scales. — VI. PROCERAE.

I. GRANULOSAE

Pileus 1–2 cm. broad; species confined to tropical America. — 1. *L. aspratella.*
Pileus 2–6 cm. broad; species confined to temperate regions. — 2. *L. amianthina.*

II. PRUINOSAE

Pileus small, 1–3 cm. broad.
  Stipe glabrous.
    Species confined to the United States.
      Pileus entirely milk-white, unchanging.
        Surface glabrous. — 3. *L. rufipes.*
        Surface densely pulverulent. — 4. *L. hemisphaerica.*
      Pileus tinged with rose or pink.
        Pileus white with pinkish disk, unchanging, 4–8 mm. broad. — 5. *L. cristatella.*
        Pileus white with a rosy tint, rosy-cinereous on drying, 3 cm. broad. — 6. *L. roseicinerea.*
      Pileus tinged with yellow or brown.
        Stipe white, clavate; spores 7–8.5 μ long. — 7. *L. juniperina.*
        Stipe pale-umber below, equal; spores 4–5 μ long. — 8. *L. neophana.*
    Species confined to tropical America.
      Pileus entirely white.
        Spores ovoid, 5 μ long. — 9. *L. lactea.*
        Spores broadly fusiform, 7–8 μ long. — 10. *L. colimensis.*
      Pileus pale-testaceous.
        Pileus 1 cm. broad; stipe and annulus testaceous. — 11. *L. subgranulosa.*
        Pileus 4 mm. broad; stipe and annulus white. — 12. *L. testacea.*
      Pileus avellaneous to fuliginous.
        Pileus umbonate, 1–2 cm. broad. — 13. *L. rimosa.*
        Pileus not distinctly umbonate, 3 cm. broad. — 14. *L. Broadwayi.*
  Stipe pulveraceous or furfuraceous.
    Pileus whitish or pale-pinkish.
      Pileus 4–8 mm. broad, whitish. — 15. *L. pusillomyces.*
      Pileus 1.5–3 cm. broad.
        Lamellae free, broad. — 16. *L. petasiformis.*
        Lamellae reaching the stipe, narrow. — 17. *L. seminuda.*
    Pileus white with isabelline powder; lamellae becoming fumosous on drying. — 18. *L. fumosifolia.*

Pileus blue or becoming so. 19. *L. cyanozonata.*
Pileus lilac to purple.
Pileus pale-lavender; odor fetid. 20. *L. ecitodora.*
Pileus whitish, with purple powder; odor not fetid. 21. *L. purpureoconia.*
Pileus large, 5–10 cm. broad; surface white, silky, subglabrous.
Stipe solid; pileus sometimes pinkish. 22. *L. solidipes.*
Stipe hollow; pileus sometimes grayish. 23. *L. naucina.*

III. STRIATAE

Pileus 5–10 cm. broad, white or yellow, usually cespitose; spores 8–11 ×5–7 μ; stipe bulbous. 24. *L. cretacea.*
Pileus 1–5 cm. broad; spores smaller than above.
Pileus white with pallid or dark scales.
Pileus white with pallid scales, rugulose. 25. *L. rugulosa.*
Pileus white with blackish or brownish scales.
Pileus 2.5–5 cm. broad; spores 6–7.5 μ long.
Stipe 5–7.5 cm. long, clavate below. 26. *L. longistriata.*
Stipe 4 cm. long, subequal. 27. *L. subclypeolaria.*
Pileus and spores smaller; stipe not thickened at the base.
Annulus persistent; stipe with a distinct black line at the base. 28. *L. noctiphila.*
Annulus evanescent or obsolete; stipe without a black line at the base. 29. *L. nudipes.*
Pileus white with yellow center. 30. *L. flavodisca.*
Pileus and scales pale-yellow.
Pileus depressed and concolorous at the center; spores not apiculate. 31. *L. spectabilis.*
Pileus subumbonate and fulvescent at the center; spores apiculate. 32. *L. flavescens.*
Pileus red or reddish or becoming so; cuticle pale-yellow, breaking into small scales.
Pileus whitish changing to rose-color; lamellae white changing to pink; stipe not bulbous. 33. *L. rhodopepla.*
Pileus incarnate-brick-colored; lamellae whitish or pale-yellowish; stipe strongly bulbous. 34. *L. sulphurina.*

IV. SQUAMULOSAE

Stipe smooth, fibrillose at times but free from scales.
Pileus becoming some shade of blue, dark-red, or brown when wounded or on drying.
Pileus changing to blue. 35. *L. coerulescens.*
Pileus changing to brown or fuliginous.
Stipe 3–7 cm. long, 2–7 mm. thick. 36. *L. brunnescens.*
Stipe 10 cm. long, 1 cm. thick. 37. *L. fuliginescens.*
Pileus changing to reddish-brown.
Pileus 2–4 cm. broad.
Lamellae white, becoming fumosous on drying. 38. *L. castanescens.*
Lamellae white, becoming rose-colored. 39. *L. roseifolia.*
Pileus 5–10 cm. broad.
Pileus densely cespitose on dead wood; scales minute. 40. *L. jamaicensis.*
Pileus solitary or subcespitose, terrestrial; scales larger. 41. *L. americana.*
Pileus not distinctly changing color when wounded or on drying.
Scales white or pallid; the disk at times differently colored.
Pileus 6–12 mm. broad; spores 12–15 μ long. 42. *L. arenicola.*
Pileus 1.5–4 cm. broad; spores 6–10 μ long.
Disk white or rose-tinted, unchanging. 43. *L. subnivosa.*
Disk white, changing to brown on drying. 44. *L. mutata.*
Scales yellow.
Surface white, with pale-yellow scales; stipe white. 45. *L. alluviina.*
Surface bright-lemon-yellow; stipe pale-yellow. 46. *L. subflavescens.*
Scales some shade of red, fulvous, or isabelline.
Pileus 1–2 cm. broad.
Surface white with fulvous scales; annulus fulvous. 47. *L. fulvastra.*
Surface pale-yellow, with cinnamon-colored scales. 48. *L. mississippiensis.*
Surface reddish-yellow.
Lamellae white, unchanging. 49. *L. repanda.*
Lamellae changing to red or pink. 50. *L. maculans.*
Pileus 2–7 cm. broad.
Stipe abruptly bulbous.
Pileus 3–4 cm. broad; stipe 2–3 cm. long. 51. *L. amanitiformis.*
Pileus 6–7 cm. broad; stipe 7 cm. long. 52. *L. abruptibulba.*
Stipe not abruptly bulbous.
Surface light-red, purple, or lilac.
Species not occurring on the Pacific coast.
Surface light-red to purple, the cuticle at first continuous then cracking radially; spores 7–11 μ long. 53. *L. rubrotincta.*
Surface pale-incarnate with darker scales; umbo black; spores 5–6 μ long. 54. *L. incarnata.*

Species confined to the Pacific coast.
Pileus 2.5–4 cm. broad, rose-lilac with livid center. 55. *L. roseilivida.*
Pileus 4–7 cm. broad, red or purplish with darker center. 56. *L. rubrotinctoides.*
Surface white beneath the rufous cuticle; spores truncate, 5–7 μ long. 57. *L. conspurcata.*
Surface white with isabelline or isabelline-testaceous scales; spores not truncate, 7–9 μ long.
Stipe white, unchanging. 58. *L. Sequoiarum.*
Stipe white, becoming rose-tinted on drying. 59. *L. amplifolia.*
Scales brown, chestnut-brown, blackish, or avellaneous.
Pileus 0.7–2.5 cm. broad.
Scales avellaneous; species confined to tropical North America.
Pileus less than 1 cm. broad; stipe purplish-fuliginous. 60. *L. subcristata.*
Pileus 1 cm. or more broad; stipe white. 61. *L. subgrisea.*
Scales brown or blackish; species confined to temperate North America.
Stipe clavate, glabrous; spores 5–6 μ long. 62. *L. phaeosticta.*
Stipe equal, furfuraceous; spores 10 μ long. 63. *L. Cultorum.*
Pileus 2.5–8 cm. broad.
Surface avellaneous; lamellae yellowish or reddish. 64. *L. avellanea.*
Surface white with brown to fuliginous scales.
Pileus 2.5–4 cm. broad.
Pileus changing to rosy-isabelline on drying. 65. *L. muticolor.*
Pileus not changing on drying. 66. *L. tepeitensis.*
Pileus 5–8 cm. broad.
Stipe glabrous above; species terrestrial. 67. *L. hortensis.*
Stipe floccose-scaly above; species wood-loving. 68. *L. dryophila.*
Surface brown or blackish, usually tinged with purple; lamellae white.
Surface slightly and innately fibrillose. 69. *L. Glatfelteri.*
Surface becoming squamose. 70. *L. felinoides.*
Stipe squamulose like the pileus.
Pileus 1–2.5 cm. broad.
Spores 10 μ or more long.
Lamellae becoming brownish on drying. 71. *L. geniculospora.*
Lamellae not becoming brownish.
Stipe 2.5–4 cm. long; surface of pileus pale-tawny. 72. *L. acerina.*
Stipe 2.5 cm. or less long; surface of pileus brown or tinged with lilac.
Surface brownish tinged with lilac; annulus evanescent. 73. *L. sublilacea.*
Surface not tinged with lilac; annulus persistent. 74. *L. floralis.*
Spores 5–8 μ long.
Pileus 1 cm. or less broad; stipe equal, blackish-brown; annulus persistent, blackish-brown below. 75. *L. gracilis.*
Pileus 1.5–2.5 cm. broad; stipe reddish or tawny below; veil flocculose, not forming an annulus.
Cuticle latericeous; spores 8 × 4 μ. 76. *L. subfelina.*
Cuticle tawny-brown; spores 5–6 × 3 μ. 77. *L. umbrosa.*
Pileus 3–9 cm. broad.
Surface livid or greenish-livid; stipe concolorous; spores 10 μ long. 78. *L. pelidna.*
Surface wood-brown to tawny-olive; spores 6–8 μ long. 79. *L. caloceps.*
Surface alutaceous to pale-umbrinous; spores 8–20 μ long.
Spores oblong-ellipsoid, 8–10 × 5–6 μ. 80. *L. spanista.*
Spores oblong-fusiform, 12–20 × 4–7 μ. 81. *L. clypeolaria.*
Surface castaneous; spores 5–7 μ. 82. *L. nardosmioides.*

V. ACUTESQUAMOSAE

Scales yellow; surface concolorous. 83. *L. scabrivelata.*
Scales brown or blackish.
Wood-loving, confined to tropical America. 84. *L. hemisclera.*
Terrestrial, confined to temperate regions.
Pileus 3–5 cm. broad; surface yellowish with latericeous to blackish-brown scales. 85. *L. fuscosquamea.*
Pileus usually 7–12 cm. broad; surface pale-ferruginous with brown, pointed, separable scales. 86. *L. aspera.*

VI. PROCERAE

Pileus with prominent umbo; stipe 15–25 cm. long; context white, unchanging. 87. *L. procera.*
Pileus not distinctly umbonate; stipe 8–10 cm. long; context becoming brownish-orange on exposure. 88. *L. rhacodes.*

I. **Granulosae.** Pileus granulose or verrucose with swollen vesicles; lamellae varying to adnate; stipe squamose below the inferior annulus.

1. **Lepiota aspratella** Murrill, Mycologia **3**: 84. 1911.

Pileus expanded, often becoming depressed, somewhat umbonate, gregarious, 1–2 cm. broad; surface yellowish-brown, thickly studded with small, granular, somewhat conic warts, which are slightly browner than the rest of the surface; lamellae free, white, much crowded, rather broad, ventricose; spores ellipsoid or ovoid, smooth, hyaline, $5\times3.5\ \mu$; stipe curved, usually equal, concolorous, floccose-scaly over its entire surface, 2–3 cm. long, 1.5–3 mm. thick; annulus not distinct.

TYPE LOCALITY: Chester Vale, Jamaica.
HABITAT: On a much decayed log in an orange grove.
DISTRIBUTION: Jamaica.

2. **Lepiota amianthina** (Scop.) Quél. Ench. Fung. 7. 1886.

Agaricus amianthinus Scop. Fl. Carn. ed. 2. **2**: 434. 1772.
Agaricus granulosus Batsch, Elench. Fung. **1**: 79. 1783.
Agaricus ochraceus Bull. Herb. Fr. *pl. 362*. 1787.
Agaricus croceus Bolt. Hist. Fung. Halifax **2**: 51. 1788.
Agaricus granulosus cinnabarinus Alb. & Schw. Consp. Fung. 147. 1805.
Agaricus carcharias Pers. Tent. Disp. Fung. 16. 1797.
Lepiota granulosa S. F. Gray, Nat. Arr. Brit. Pl. **1**: 602. 1821.
Agaricus granosus Morgan, Jour. Cinc. Soc. Nat. Hist. **6**: 63. 1883.
Lepiota pulveracea Peck, Ann. Rep. N. Y. State Mus. **54**: 144. 1901.
Lepiota adnatifolia Peck, Bull. N. Y. State Mus. **10**: 947. 1902.

Pileus ovoid to campanulate and expanded, subumbonate, 2–6 cm. broad; surface finely to coarsely granulose, ochraceous to reddish-ferruginous varying to pallid or pinkish; context thin, white or yellowish, often with a disagreeable odor; lamellae free to adnexed or adnate, rather broad, close, white becoming yellowish; spores ellipsoid or subglobose, smooth, hyaline, $3–7\times2.5–4\ \mu$; stipe subequal, slender, fistulose, scaly below the annulus and concolorous, 4–8 cm. long, 2–7 mm. thick; veil lacerate, more or less appendiculate.

TYPE LOCALITY: Carniola.
HABITAT: On the ground or on dead wood in woods.
DISTRIBUTION: Throughout temperate North America; also in Europe.
ILLUSTRATIONS: Barla, Champ. Nice *pl. 16, f. 1–11;* Bull. Herb. Fr. *pl. 362;* Cooke, Brit. Fungi *pl. 213 (40), 42 (37), 43 (38), 18 (39);* Boudier, Ic. Myc. *pl. 14–16;* Pat. Tab. Fung. *f. 610, 611;* Hussey, Ill. Brit. Myc. **1**: *pl. 45;* Sow. Engl. Fungi *pl. 19;* Journ. Cinc. Soc. Nat. Hist. **6**: *pl. 3;* Gill. Champ. Fr. *pl. 44 (412).*
EXSICCATI: Ellis & Ev. N. Am. Fungi *2001;* Sydow, Myc. Mar. *1405, 2702;* Karst. Finl. Fungi *205;* Herpell, Präp. Hutpilze *117;* Roum. Fungi Gall. *3902;* Allesch. & Schn. Fungi Bavar. *234, 235;* Jacz. Fungi Rossiae *283;* Krieger, Fungi Sax. *527, 573.*

II. **Pruinosae.** Pileus pruinose, fibrillose, pulverulent, or glabrescent, rarely glabrous from the first; cuticle continuous, rarely cracking to form large areoles but never forming scales.

3. **Lepiota rufipes** Morgan, Jour. Myc. **12**: 156. 1912.

Pileus slightly fleshy, convex, smooth and glabrous, white, about 1 cm. broad; lamellae broad, close, white, free, approximate; spores oblong, $4–5\times3\ \mu$; stipe slender, smooth, glabrous, rufescent, paler at the summit, 2–3 cm. long; annulus evanescent.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground among old leaves in woods.
DISTRIBUTION: Known only from the type locality.

4. **Lepiota hemisphaerica** Murrill, sp. nov.

Pileus small, rather thick, campanulate to hemispheric, with a prominent, rounded umbo, scattered, 1–1.5 cm. broad; surface uniformly milk-white, unchanging, densely pulverulent, not glabrescent, margin entire, concolorous; lamellae broad, plane, subdistant, yellowish, unchanging; spores irregularly ellipsoid, appendiculate, smooth, hyaline, $4\times2\ \mu$; stipe very slender, equal, pruinose to subglabrous, white with a rufous tint, slightly darker on drying, 2–3.5 cm. long, 1–1.5 mm. thick; veil slight, evanescent.

Type collected on the ground in mixed woods among dead leaves and sticks at Unaka Springs, Tennessee, August 18–24, 1904, *W. A. Murrill 879.*
DISTRIBUTION: Known only from the type locality.

5. **Lepiota cristatella** (Peck) Sacc. Syll. Fung. **5**: 47. 1887.

Agaricus cristatellus Peck, Ann. Rep. N. Y. State Mus. **35**: 163. 1884.

Pileus thin, convex, subumbonate, 4–8 mm. broad; surface minutely mealy, especially on the margin, white, the disk slightly tinged with pink, margin at times somewhat appendiculate; lamellae free, rounded behind, crowded, white; spores subellipsoid, smooth, hyaline, 5 μ long; stipe slender, whitish, hollow, 2.5 cm. long, 1 mm. thick; annulus obsolete.

TYPE LOCALITY: Copake, New York.
HABITAT: Mossy places in woods.
DISTRIBUTION: New England to Michigan and south to Missouri.

6. **Lepiota roseicinerea** Murrill, sp. nov.

Pileus convex to subexpanded, with a slight umbo, solitary, 3 cm. broad; surface nearly white with a rosy tint, dry, pruinose, becoming rosy-cinereous on drying, the small, slightly depressed umbo somewhat darker; lamellae crowded, plane, reaching the enlarged apex of the stipe, concolorous when fresh and on drying, except behind where they change to umbrinous; spores ellipsoid, appendiculate, uninucleate, smooth, with a faint yellowish tint, 6–7$\times$4 μ; stipe very long, tapering upward from a clavate base, fibrillose, subconcolorous, 7 cm. long, 1–3 mm. thick above, 8 mm. thick at the base; veil slight, evanescent.

Type collected on the ground among dead leaves in woods in the New York Botanical Garden, September 9, 1911, *W. A. Murrill.*
DISTRIBUTION: Known only from the type locality.

7. **Lepiota juniperina** Murrill, sp. nov.

Pileus convex to subexpanded, slightly umbonate at times, gregarious, 2.5 cm. broad; surface dry, smooth, whitish tinged with isabelline, pubescent or fibrillose to subglabrous, glabrous on the disk, margin entire, not striate; lamellae narrow, crowded, not ventricose, white, unchanging; spores ellipsoid, appendiculate, smooth, hyaline, 7–8.5$\times$3.5–5 μ; stipe tapering upward from a clavate base, smooth, glabrous, white, hollow, 5–7.5 cm. long, 3–6 mm. thick; annulus median, ample, persistent, white, attached by the lower edge.

Type collected on the ground under red cedar trees at Elizabethton, Tennessee, August 7–10, 1904, *W. A. Murrill 464.*
DISTRIBUTION: Known only from the type locality.

8. **Lepiota neophana** Morgan, Jour. Myc. **12**: 248. 1906.

Pileus fleshy, ovoid to campanulate and expanded, subumbonate, 2–3 cm. broad; surface smooth and glabrous, buff to pale-umber, dark-brown in the center, the cuticle continuous or at maturity sometimes cracking into irregular areolae; context thin, firm, white, tough; lamellae broad, close, white, obtuse behind, free, approximate; spores oblong, obliquely apiculate, 4–5$\times$3 μ; stipe slender, subequal, tough, fistulose, white above the annulus, pale-umber below, with a white-fibrillose cuticle, 3–4 cm. long, 2–3 mm. thick.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

9. **Lepiota lactea** Murrill, Mycologia **3**: 81. 1911.

Pileus thin, convex, slightly umbonate, solitary, 1–1.5 cm. broad; surface white, smooth, slightly silky, especially near the margin; lamellae free, crowded, rather broad, plane, white; spores ovoid, regular, smooth, hyaline, 5$\times$3.5 μ; stipe white, hollow, subglabrous, tapering upward from an enlarged base, 4 cm. long, 2–5 mm. thick; annulus large, white, persistent, near the middle of the stipe.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground in a banana field.
DISTRIBUTION: Known only from the type locality.

10. **Lepiota colimensis** Murrill, Mycologia **3**: 82. 1911.

Pileus convex, regular, solitary, not umbonate, 1.5 cm. broad, 5 mm. high; surface dry, white, delicately floccose, not scaly, the center concolorous; lamellae free, white; spores broadly fusiform, smooth, pure-hyaline, 7–8×3.5–4.5 μ; stipe long, slender, white with an avellaneous tint, cepaeform at the base, 4 cm. long, 2 mm. thick above, 7 mm. thick below; annulus superior, large, white, persistent, apparently fixed.

TYPE LOCALITY: Colima, Mexico.
HABITAT: On the ground in an orchard.
DISTRIBUTION: Mexico.

11. **Lepiota subgranulosa** Murrill, Mycologia **3**: 83. 1911.

Pileus hemispheric, 1 cm. broad, 5 mm. high, solitary; surface testaceous, finely pulverulent, adorned with minute, conic tufts of fibrils; lamellae free, narrow, close, white to stramineous; spores ellipsoid, smooth, hyaline, a few distinctly uninucleate, not apiculate, 7×3.5 μ; stipe testaceous, fibrillose, cylindric, equal, not enlarged at the base, rose-colored at the apex, 1.5 cm. long, 2 mm. thick; annulus testaceous, superior, very close to the lamellae, fixed by the lower margin, the free limb narrow and perpendicular to the stipe.

TYPE LOCALITY: Xuchiles, near Cordoba, Mexico.
HABITAT: On the ground in coffee plantations.
DISTRIBUTION: Known only from the type locality.

12. **Lepiota testacea** Murrill, Mycologia **3**: 83. 1911.

Pileus conic, truncate, regular, 4 mm. broad, 2 mm. high, solitary; surface smooth, pale-testaceous, covered with fine tomentum, margin fibrillose; lamellae free, white, ventricose, broad; spores ovoid, smooth, hyaline, uninucleate, 7×3.5–4 μ; stipe cylindric, enlarged at the base, glabrous, white, 1 cm. long, scarcely 1 mm. thick; annulus superior, large, persistent, white, fixed by the lower margin.

TYPE LOCALITY: Chester Vale, Jamaica.
HABITAT: In rich soil on a damp, shaded bank.
DISTRIBUTION: Jamaica.

13. **Lepiota rimosa** Murrill, Mycologia **3**: 85. 1911.

Pileus convex to expanded, umbonate, gregarious, 1–2 cm. broad; surface smoky-fuliginous, paler with age, faintly striate, often splitting from the margin, covered with a granular coating which cracks areolately with age exposing the white flesh; lamellae free, crowded, very broad, somewhat ventricose, white; spores subglobose or broadly ovoid, smooth, hyaline, 4 μ long; stipe cylindric, white, subglabrous, 2–4 cm. long, 1–2 mm. thick; annulus small, white, persistent, about the middle of the stipe.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground in a garden.
DISTRIBUTION: Cuba and South Carolina.

14. **Lepiota Broadwayi** Murrill, Mycologia **3**: 84. 1911.

Pileus expanded, regular, scarcely umbonate, about 3 cm. broad; surface dry, subglabrous, striate, avellaneous, fuliginous at the center, the cuticle remaining almost unbroken; lamellae free, white, broad, unequal; spores perfectly globose, hyaline, smooth, 5 μ; stipe 3 cm. long, 3 mm. thick, enlarged above, hollow, glabrous, whitish; annulus white, ample, superior, persistent, apparently fixed.

TYPE LOCALITY: Hyde Park, St. George's, Grenada.
HABITAT: On the ground between roots of trees.
DISTRIBUTION: Grenada.

15. **Lepiota pusillomyces** (Peck) Sacc. Syll. Fung. **5**: 48. 1887.

Agaricus (*Lepiota*) *pusillomyces* Peck, Ann. Rep. N. Y. State Mus. **28**: 48. 1876.

Pileus thin, subcampanulate or convex, subumbonate, 4–8 mm. broad; surface whitish or dingy, minutely granular-mealy; lamellae free, white, broad, crowded; spores ellipsoid,

smooth, hyaline, 4–5 μ long; stipe slender, equal, concolorous, rough with a granular mealiness, about 2 cm. long and 1 mm. thick; annulus wanting.

TYPE LOCALITY: Lake Pleasant, New York.
HABITAT: On the ground under bracken ferns.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **28**: *pl. 1, f. 1–3.*

16. **Lepiota petasiformis** Murrill, Mycologia **4**: 232. 1912.

Pileus thin, hat-shaped, with prominent conic umbo, scattered or gregarious, 1.5–2.5 cm. broad; surface dry, rosy-isabelline, or about the color of the back of the hand, covered with an abundance of fine powder; lamellae free, subdistant, rather broad, white; spores ellipsoid, smooth, hyaline, minute, 3.5×2 μ; stipe slender, tapering upward, clothed with powder like the pileus, reaching 6 cm. long and 2–3 mm. thick; veil fugacious, not forming an annulus.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In humus in woods.
DISTRIBUTION: Washington.

17. **Lepiota seminuda** (Lasch) Quél. Champ. Jura Vosg. 210. 1872.

Agaricus seminudus Lasch, Linnaea **3**: 157. 1828.

Pileus very thin, campanulate to expanded, umbonate, 2–3 cm. broad; surface floccose-mealy, at length naked, whitish or pinkish, the margin appendiculate with the torn veil; lamellae rather narrow, white, reaching the stipe; spores ovoid, 3–4×2.5 μ; stipe hollow, slender, farinaceous, 3–5 cm. long, about 2 mm. thick.

TYPE LOCALITY: Brandenburg, Germany.
HABITAT: On the ground in woods.
DISTRIBUTION: Eastern United States; also in Europe.

18. **Lepiota fumosifolia** Murrill, Mycologia **4**: 233. 1912.

Pileus convex, not umbonate, gregarious, 3 cm. broad; surface dry, white with isabelline, powdery scales, the center isabelline; lamellae free, broad, rather crowded, white, becoming fumosous on drying; spores oblong-fusiform, smooth, hyaline, 12×7 μ; stipe equal or tapering upward, cylindric, smooth, white, furfuraceous, pale-avellaneous below, 6 cm. long, 6 mm. thick; veil soon breaking into fragments which cling to the margin and stipe.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

19. **Lepiota cyanozonata** Longyear, Rep. Mich. Acad. Sci. **3**: 57. 1902.

Pileus thin except at the disk, conic-convex to expanded, broadly umbonate, 1–1.8 cm. broad; surface cream-colored or pinkish-white with a narrow zone of light-blue near the margin, brownish-tan when dry, fibrillose when young, soon becoming glabrous, slightly uneven on the margin; context whitish, becoming brownish when bruised; lamellae free, scarcely crowded, thin, soft, whitish, becoming dingy-brown on drying; spores globose, smooth, hyaline, 6–8 μ; stipe equal, whitish, minutely silky at the apex, squamulose below, narrowly fistulose, 2–3 cm. long, 2 mm. thick; annulus delicate, fibrous, usually evanescent.

TYPE LOCALITY: Leslie, Michigan.
HABITAT: Decaying sticks on the ground in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Rep. Mich. Acad. Sci. **3**: *pl. 1, f. 1.*

20. **Lepiota ecitodora** Atk. Jour. Myc. **8**: 115. 1902.

Pileus convex, 2 cm. broad; surface pale-lavender, minutely scaly; context thin, white, with fetid odor resembling that of eciton ants; lamellae rounded behind, narrow in front, 3 mm. broad, white tinged with yellow; spores cylindric, smooth, hyaline, 9–11×2–2.5 μ;

stipe rather tough, attenuate below, white and pruinose at the apex, dark-brown to blackish below, 5 cm. long, 2.5 mm. thick; annulus powdery, evanescent.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

21. **Lepiota purpureoconia** Atk. Jour. Myc. 8: 116. 1902.

Pileus very thin, convex, scattered, 1–2 cm. broad; surface whitish, but covered with a heliotrope-purple, powdery substance that forms the universal veil; context white tinged with yellow; lamellae close but free, rounded, rather distant, broad, stout, white, tinged with yellow; spores ellipsoid, smooth, hyaline, 8–10×3–4 μ; stipe fleshy, even, whitish, covered with heliotrope-purple powder below the annulus, solid; annulus evanescent.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

22. **Lepiota solidipes** Peck, Bull. N. Y. State Mus. **5**: 647. 1899.

Pileus fleshy, very convex or subhemispheric, becoming broadly convex or nearly plane, 5–10 cm. broad; surface smooth, glabrous, white, sometimes with a slight pinkish tint; context white, taste and odor farinaceous; lamellae thin, free, crowded, white; spores globose or subglobose, smooth, hyaline, 4–5 μ; stipe equal, at times somewhat bulbous, white or whitish, silky-fibrillose, solid, 5–10 cm. long, 8–16 mm. thick; annulus large, thin, membranous, slightly floccose externally, subevanescent.

TYPE LOCALITY: Saratoga, New York.
HABITAT: Damp or swampy ground.
DISTRIBUTION: Known only from the type locality.

23. **Lepiota naucina** (Fries) Quél. Champ. Jura Vosg. 35. 1872.

Agaricus (*Lepiota*) *naucinus* Fries, Epicr. Myc. 16. 1838.
Agaricus (*Lepiota*) *naucinoides* Peck, Ann. Rep. N. Y. State Mus. **29**: 66. 1876.

Pileus very fleshy, subglobose and obtuse to convex and subexpanded, subumbonate, gregarious, 4–9 cm. broad; surface white or slightly yellowish, commonly smooth and glabrous, but sometimes with the thin cuticle broken up into very minute fibrillose scales; context thick, white; lamellae rather broad, close, free, white, slowly changing to pinkish-brown or smoky-brown with age; spores ovoid-ellipsoid, apiculate, uniguttulate, hyaline or faintly pinkish, 7–9×5–6 μ; stipe tapering upward from the clavate base, fistulose or fibrous-stuffed, white, smooth and glabrous or becoming slightly fibrillose toward the base, 5–12 cm. long, 0.5–1.5 cm. thick at the apex, 1–3 cm. thick at the base; annulus thin, membranous, white, persistent.

TYPE LOCALITY: Europe.
HABITAT: Grassy grounds, pastures, and roadsides.
DISTRIBUTION: Eastern United States, westward to Kansas and California; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 19;* Atk. Stud. Am. Fungi *f. 79, 80;* McIlv. Am. Fungi *pl. 15;* Vitt. Descr. Funghi Mang. *pl. 40;* Gill. Champ. Fr. *pl. 37* (*428*).

III. **Striatae.** Pileus thin, squamulose, conspicuously long-striate.

24. **Lepiota cretacea** (Bull.) Morgan, Jour. Myc. **13**: 3. 1907.

Agaricus cretaceus Bull. Herb. Fr. *pl. 374.* 1787.
Agaricus luteus With. Bot. Arr. **3**: 344. 1792.
Agaricus cepaestipes Sow. Engl. Fungi *pl. 2.* 1795.
Hiatula fragilissima Berk. & Rav. Ann. Nat. Hist. II. **12**: 422. 1853.
Agaricus (*Lepiota*) *subremotus* Berk. & Curt. Ann. Nat. Hist. III. **4**: 1. 1859.
Agaricus (*Lepiota*) *sordescens* Berk. & Curt. Jour. Linn. Soc. **10**: 283. 1868.
Agaricus (*Lepiota*) *cheimonoceps* Berk. & Curt. Jour. Linn. Soc. **10**: 283. 1868.
Lepiota cepaestipes Quél. Champ. Jura Vosg. 35. 1872.
Lepiota farinosa Peck, Ann. Rep. N. Y. State Mus. **43**: 35. 1890.
Lepiota mammaeformis Underw. Bull. Torrey Club **24**: 82. 1897.
? *Lepiota Earlei* Peck, Bull. Torrey Club **25**: 368. 1898.
Lepiota xylophila Peck, Bull. Torrey Club **34**: 97. 1907.

Pileus thin or submembranous, at first subovoid with an obtuse apex, then campanulate

and expanded, umbonate, gregarious or cespitose, 5–10 cm. broad; surface white varying to lemon-yellow or orange-yellow throughout, often brownish on the umbo, densely flocculose-scaly and farinaceous, plicate-sulcate on the margin, the cuticle thin, very soon separating into minute scales which are more or less deciduous; lamellae rather narrow, close, free; spores ovoid-ellipsoid, hyaline, uniguttulate, 8–11×5–7 μ; stipe arising from the more or less elongate and thickened base, tapering upward, flexuous, hollow, subglabrous above, clothed like the pileus below; 8–16 cm. long, 4–6 mm. thick at the apex, 1–2 cm. thick at the base; annulus thin, membranous, subpersistent.

TYPE LOCALITY: France.
HABITAT: Rich soil in gardens, hot beds, and woods.
DISTRIBUTION: Cosmopolitan.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 374;* Bull. N. Y. State Mus. 94: *pl. 87;* Boudier, Ic. Myc. *pl. 19;* Cooke, Brit. Fungi *pl. 5 (36), 1110, 1103;* Gill. Champ. Fr. *pl. 35 (414);* Hard, Mushrooms *37;* Sow. Engl. Fungi *pl. 2.*

25. **Lepiota rugulosa** Peck, Bull. Torrey Club **27**: 15. 1900.

Pileus thin, submembranous, broadly convex or nearly plane, umbonate, 1.2–2 cm. broad; surface rugulose, at least when dry, whitish, widely striate on the margin; lamellae free, thin, crowded, narrow, whitish; spores ellipsoid, smooth, hyaline, 7.5×4 μ; stipe short, equal, whitish, slightly silky, about 2.5 cm. broad and 2 mm. thick; annulus thin, white, persistent.

TYPE LOCALITY: Washington, District of Columbia.
HABITAT: Moist grassy places under trees.
DISTRIBUTION: Known only from the type locality.

26. **Lepiota longistriata** Peck, Bull. Torrey Club **25**: 368. 1898.

Pileus thin, convex or nearly plane, umbonate, 2.5–5 cm. broad; surface hairy-squamulose, striate nearly or quite to the umbo, whitish or pale-gray, brownish on the umbo; lamellae free, narrow, crowded, minutely floccose on the edges, yellowish-white, becoming darker on drying; spores ellipsoid, smooth, hyaline, 6–7.5×4–5 μ; stipe slender, tapering upward from the thickened base, hollow, 5–7.5 cm. long, 2–6 mm. thick; annulus delicate, white, evanescent.

TYPE LOCALITY: Alabama.
HABITAT: In gardens, on lawns, or in woods.
DISTRIBUTION: Alabama, Cuba, and Jamaica.

27. **Lepiota subclypeolaria** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 67. 1887.

Agaricus (*Lepiota*) *subclypeolarius* Berk. & Curt. Jour. Linn. Soc. **10**: 283. 1868.

Pileus ovoid to plane, thin, umbonate, about 4 cm. broad; surface radiate-striate, floccose-squamose, white, fuscous on the umbo; lamellae free, remote, distant; spores broadly ellipsoid, smooth, hyaline, averaging 6×4.3 μ; stipe subequal, glabrous, white, 4 cm. long; annulus median.

TYPE LOCALITY: Cuba.
HABITAT: On roots of trees or dead wood.
DISTRIBUTION: Known only from the type locality.

28. **Lepiota noctiphila** (Ellis) Sacc. Syll. Fung. **5**: 50. 1887.

Agaricus (*Lepiota*) *noctiphilus* Ellis, Bull. Torrey Club **5**: 45. 1874.

Pileus fleshy, cylindric or hemispheric becoming convex or at times depressed, rather broadly umbonate, subcespitose, reaching 2.5 cm. broad; surface dotted, especially on the disk, with fine, blackish scales, which may be easily rubbed off, sulcate-striate on the margin, at length striate nearly to the center; context thin, white, very thin toward the margin; lamellae free, rounded behind, subcrowded, serrulate on the edges, white; spores ellipsoid, smooth, hyaline, about 5 μ long; stipe slender, about 2.5 cm. long, farinose-squamose, loosely stuffed, surrounded by a distinct black line at the base; annulus superior, persistent.

TYPE LOCALITY: Newfield, New Jersey.
HABITAT: On a bank of earth in an unfinished cellar.
DISTRIBUTION: Known only from the type locality.

29. **Lepiota nudipes** Peck, Bull. Torrey Club **33**: 213. 1906.

Pileus thin, convex-umbonate, 1.2–2 cm. broad; surface minutely brownish-squamulose, whitish, the umbo darker brown and smooth, the margin becoming obscurely striate; context white, without odor; lamellae thin, free, ventricose, subcrowded, white; spores ellipsoid, smooth, hyaline, 5–6×3–4 μ; stipe slender, fibrous, equal or subequal, pallid, brownish and fibrillose below, 2.5–4 cm. long, scarcely 1 mm. thick; annulus evanescent or obsolete.

TYPE LOCALITY: St. Louis, Missouri.
DISTRIBUTION: Known only from the type locality.

30. **Lepiota flavodisca** Murrill, Mycologia **3**: 82. 1911.

Pileus thin, conic to subexpanded, the center remaining conic in form, solitary, 2 cm. broad; surface white, minutely crested, long and deeply striate, becoming plicate on drying, the center flavous, subglabrous to granulose; lamellae white, free, rather crowded; spores ovoid, smooth, hyaline, uninucleate, 5–7×3–4 μ; stipe slender, enlarged and flavous at the base, hollow, minutely tomentose, 3 cm. long; annulus slight, evanescent.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: In Bermuda grass sod.
DISTRIBUTION: Known only from the type locality.

31. **Lepiota spectabilis** Clem. Bot. Surv. Neb. **3**: 12. 1894.

Pileus thin, depressed on the disk, solitary, 2–2.5 cm. broad; surface smooth, pale-sulfur-yellow, silky-fibrous or pulverulent, striate-sulcate on the margin; lamellae crowded, narrow, light-yellow; spores ovoid, not apiculate, smooth, hyaline, uninucleate, 5–6×3–4 μ; stipe slender, much enlarged at the base, squamulose above, glabrous below, 3–4 cm. long; annulus inferior, stramineous, fissured.

TYPE LOCALITY: Lincoln, Nebraska.
HABITAT: On soil in greenhouses.
DISTRIBUTION: Known only from the type locality.

32. **Lepiota flavescens** Morgan, Jour. Myc. **13**: 5. 1907.

Lepiota Allenae Peck, Bull. N. Y. State Mus. 150: 56. 1911.

Pileus submembranous, ovoid to campanulate and expanded, subumbonate, 2–4 cm. broad; surface radiate-fibrillose, becoming scaly, sulcate nearly to the center, pale-yellow, fulvescent on the umbo; lamellae narrow, distant, free, white or yellowish; spores oblong-ellipsoid, obliquely apiculate, uniguttulate, 5–6×3–4 μ; stipe slender, tapering upward, fistulose, rufescent beneath the white-fibrillose cuticle, 3–5 cm. long, 2–4 mm. thick; annulus thin, membranous, yellowish, persistent.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground under *Robinia* and *Gleditsia* trees.
DISTRIBUTION: Known only from the type locality.

33. **Lepiota rhodopepla** Morgan, Jour. Myc. **13**: 6. 1907.

Pileus submembranous, ovoid to campanulate and expanded, subumbonate, 1–2 cm. broad; surface radiate-fibrillose, rimulose-sulcate nearly to the center, beneath the cuticle whitish changing to rose-color, cuticle very thin, pale-yellow, soon separating into furfuraceous scales; lamellae rather broad, subdistant, whitish changing to pinkish; spores oblong-ellipsoid, 6–8×4–5 μ; stipe tapering upward, fistulose, rose-colored beneath the white-fibrillose cuticle, 2–3 cm. long, 1–2 mm. thick; annulus thin, membranous, pale-yellow.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground among weeds in cultivated fields.
DISTRIBUTION: Known only from the type locality.

34. **Lepiota sulphurina** (Clem.) Sacc. Syll. Fung. **14**: 67. 1899.

Mastocephalus sulphurinus Clem. Bot. Surv. Neb. **4**: 18. 1896.

Pileus subfleshy, campanulate to convex with distinct umbo, 1.5–3 cm. broad; surface glabrous, incarnate-brick-colored, with silky, sulfur-yellow pellicle torn into crowded, oblong

or elliptic scales, margin floccose, distinctly striate-plicate; lamellae touching the collar, crowded, linear, whitish or pale-stramineous; spores ovoid-ellipsoid, smooth, hyaline, uninucleate, 7–9×4–5 μ; stipe slender, strongly bulbous, increasing above, pruinose, shining-isabelline, fistulose, yellow and floccose at the base, 4 cm. long, about 3–4 mm. thick at the center, the bulb 6–7 mm. thick; annulus superior, fixed, sulfur-yellow, lacerate.

TYPE LOCALITY: Lincoln, Nebraska.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

IV. **Squamulosae.** Pileus appressed-squamulose, not conspicuously striate.

35. **Lepiota coerulescens** Peck, Bull. Torrey Club **26**: 63. 1899.

Pileus thin, convex, obtuse or slightly umbonate, 1.5–2 cm. broad; surface whitish, squamulose, the squamules and the center brownish, the entire surface becoming blue on drying; context white, becoming blue on drying; lamellae thin, free, crowded, white, becoming blue on drying; spores ellipsoid, smooth, hyaline, 7×5 μ; stipe equal, slender, brownish, 3–5 cm. long, 2 mm. thick; annulus membranous, persistent, white, externally tinged with blue when dry.

TYPE LOCALITY: Ohio.
HABITAT: On the ground.
DISTRIBUTION: Ohio and Missouri.

36. **Lepiota brunnescens** Peck, Bull. Torrey Club **31**: 177. 1904.

Lepiota rufescens Morgan, Jour. Myc. **12**: 246. 1906.

Pileus thin, convex or nearly plane, usually obtuse or umbonate, 2–8 cm. broad, the entire plant changing to brown when bruised or after 12–24 hours of drying; surface whitish, the cuticle soon cracking and forming chestnut-colored squamules except in the center, margin often rosy, radiate-rimose at times; context white, taste sweet; lamellae free, at first white, crowded, ventricose; spores ovoid, appendiculate, smooth, hyaline, yellowish in mass, 6–8× 4–5 μ; stipe equal or slightly enlarged below, white, changing at first to reddish-brown and then to brown below the annulus on drying, fibrous to glabrous, hollow, 3–7 cm. long, 2–7 mm. thick; annulus median, fixed, usually ample and persistent.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: Open woods and grassy places.
DISTRIBUTION: New York, New Jersey, Ohio, Missouri, and southern California.

37. **Lepiota fuliginescens** Murrill, Mycologia 4: 236. 1912.

Pileus convex to subexpanded, solitary, about 8 cm. broad; surface dry, finely imbricate-floccose-scaly, slightly rimose, white with rosy tints, becoming fuliginous on drying; lamellae free, distant, narrow, arcuate, white, changing to pale-latericeous on drying; spores regularly ovoid, smooth, hyaline, 6×4 μ; stipe long and twisted owing to its struggle through the leaves, tapering upward, polished, hollow, colored and changing like the pileus, about 10×1 cm.; annulus superior, ample, fixed, white to pale-fuliginous.

TYPE LOCALITY: La Honda, California.
HABITAT: On the ground in a redwood forest.
DISTRIBUTION: Known only from the type locality.

38. **Lepiota castanescens** Murrill, Mycologia 4: 234. 1912.

Pileus small, thin, convex to subexpanded, prominently umbonate, 2–3 cm. broad; surface dry, densely appressed-fibrillose, white to rose-colored, glabrous and darker-red on the umbo, the entire surface changing to castaneous on drying; lamellae free, crowded, narrow, plane, white, becoming fumosous on drying; spores ellipsoid, smooth, pointed, strictly hyaline, 7–8×3–4 μ; stipe tapering upward, slender, slightly fibrillose, hollow, about 6 cm. long and 2–5 mm. thick, white or rose-tinted, changing to castaneous on drying; annulus superior, fixed, ample, persistent, white, changing to castaneous on drying.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

39. **Lepiota roseifolia** Murrill, Mycologia **4**: 235. 1912.

Pileus regular, convex to subexpanded, solitary, 4 cm. broad; surface dry, shining, innate-fibrillose, radiate-rimose, smooth and glabrous at the center, castaneous, blackish-tinged when fresh, assuming a more reddish tint after picking; lamellae free, crowded, slightly ventricose, regular, white when fresh, changing to rose-colored on drying or when bruised; spores ellipsoid, smooth, hyaline, 7–8×3–3.5 μ; stipe equal, compressed, very long because buried in leaves, hollow, smooth, glabrous, avellaneous-isabelline, white at the apex, 17 cm. long, 5 mm. thick; annulus superior, slight, fixed, fuliginous.

TYPE LOCALITY: La Honda, California.
HABITAT: In humus in a redwood forest.
DISTRIBUTION: Known only from the type locality.

40. **Lepiota jamaicensis** Murrill, Mycologia **3**: 87. 1911.

Pileus 10 cm. in diameter, convex to plane, with a prominent, hemispheric umbo, cespitose on dead wood, the entire sporophore becoming reddish-brown when bruised or on drying; surface dry, white or very pale yellowish, adorned with brownish, floccose scales 1 mm. broad, the remains of the cuticle; umbo brown, minutely scaly; context thin, white; lamellae free, white, becoming discolored when the spores mature; spores ovoid, rounded at both ends, not apiculate, often uninucleate, very pale brown, 9×6–7 μ; stipe enlarged at the base, tapering upward, 10 cm. or more long, 1.7 cm. thick below, 0.7 cm. thick above, subglabrous, slightly reddish-brown; annulus large, superior, movable, reddish-brown.

TYPE LOCALITY: Manchioneal, Jamaica.
HABITAT: On a hardwood stump in a cocoanut plantation.
DISTRIBUTION: Known only from the type locality.

41. **Lepiota americana** Peck, Ann. Rep. N. Y. State Mus. **49**: 56. 1897.

Agaricus americanus Peck, Ann. Rep. N. Y. State Cab. **23**: 71. 1872.

Pileus fleshy, ovoid to campanulate and expanded, umbonate, solitary or subcespitose, 5–10 cm. or more broad; surface radiate-fibrillose beneath the cuticle and at first white, the cuticle brick-colored or bay-brown, at first continuous, soon breaking up except upon the umbo into small scales, which are gradually drawn apart and scattered over the surface, substriate on the margin; context thin, white, changing to dull-red or smoky-red when bruised or on drying; lamellae rather narrow, close, free, white; spores ovoid or subellipsoid, uniguttulate, subhyaline, 7.5–10×5–7 μ; stipe tapering upward from the more or less thickened and elongate base, fistulose, smooth, subglabrous, white, changing to red when bruised, 8–12 cm. or more long, 4–6 mm. thick at the apex, 8–12 mm. thick at the base; annulus thin, membranous.

TYPE LOCALITY: Buffalo, New York.
HABITAT: Rich soil in grassy grounds or around old stumps, or on compost heaps.
DISTRIBUTION: New Brunswick to Alabama and west to Iowa.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **49**: *pl. 44, f. 6–10;* Atk. Stud. Am. Fungi *f. 82;* McIlv. Am. Fungi *pl. 15a;* Mycologia **3**: *pl. 49, f. 6.*

42. **Lepiota arenicola** Peck, Ann. Rep. N. Y. State Mus. **40**: 59. 1887.

Pileus broadly conic to subplane, 6–12 mm. broad; surface white or cinereous, granulose and obscurely punctate-squamulose, margin substriate, crenulate; lamellae distant, subventricose, white; spores oblong, subfusoid, acute at the base, smooth, hyaline, 12–15×5–6 μ; stipe equal, glabrous, whitish, stuffed, 1.5–2.5 cm. long, 5 mm. thick; annulus imperfect, nearly obsolete.

TYPE LOCALITY: New York.
HABITAT: In sandy ground.
DISTRIBUTION: New York.

43. **Lepiota subnivosa** Murrill, Mycologia 4: 231. 1912.

Pileus thin, convex to plane, umbonate, solitary, 1.5–3 cm. broad; surface dry, smooth, somewhat striate at times, slightly innate-fibrillose, with a few scattered floccose scales, snow-white throughout or rose-tinted on the umbo; lamellae free, narrow, not crowded, white; spores ellipsoid, smooth, hyaline, uniguttulate, 7–8×3.5 μ; stipe thicker below, slender, glabrous, hollow, white, 5–9 cm. long, 2–4 mm. thick; annulus superior, white, fixed, rarely ample and persistent, usually breaking up and vanishing, especially in small plants.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On banks in deep woods.
DISTRIBUTION: Washington.

44. **Lepiota mutata** Peck, Bull. Torrey Club **23**: 411. 1896.

Pileus thin, convex, subumbonate, 2.5–4 cm. broad; surface slightly scabrous on the disk, white, changing to brown on the disk in drying; lamellae thin, free, white, crowded, subventricose; spores ellipsoid, smooth, hyaline, 7.5–10×5–6 μ; stipe slender, equal, white, hollow, about 2.5 cm. long, 2–4 mm. thick; annulus slight, sometimes evanescent.

TYPE LOCALITY: Kansas.
HABITAT: On the ground in woods.
DISTRIBUTION: Kansas.

45. **Lepiota alluviina** (Peck) Morgan, Jour. Myc. **12**: 243. 1906.

Agaricus alluviinus Peck, Ann. Rep. N. Y. State Mus. **35**: 157. 1884.

Pileus thin, convex or plane, sometimes reflexed on the margin, 1.2–2.5 cm. broad; surface white, adorned with minute, pale-yellow, hairy or fibrillose scales, both surface and covering becoming deeper yellow on drying; lamellae free, thin, crowded, white or yellowish; spores ellipsoid, smooth, hyaline, 6–8×4–5 μ; stipe slender, slightly thickened at the base, whitish or pallid, fibrillose, 2.5–5 cm. long, 2–3 mm. thick; annulus usually remote, sometimes below the middle of the stipe, slight, subpersistent.

TYPE LOCALITY: Albany, New York.
HABITAT: Alluvial soil among weeds.
DISTRIBUTION: Known only from the type locality.

46. **Lepiota subflavescens** Murrill, sp. nov.

Pileus thin, expanded or somewhat depressed, 2 cm. broad; surface bright-lemon-yellow, not striate, appressed-squamulose, the cuticle entire on the disk, margin thin, entire, concolorous; context very thin, white; lamellae free, broad, crowded, white; spores ellipsoid, appendiculate, smooth, hyaline, 6–7×3–4 μ; stipe equal except at the bulbous base, solid, pale-yellow, glabrescent, 3 cm. long, 2 mm. thick; annulus ample, persistent, median, yellow.

Type collected on the ground in moist woods in City Park, New Orleans, Louisiana, September 6, 1908, *F. S. Earle 76*.
DISTRIBUTION: Known only from the type locality.

47. **Lepiota fulvastra** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 51. 1887.

Agaricus (*Lepiota*) *fulvaster* Berk. & Curt. Ann. Nat. Hist. II. **12**: 419. 1853.

Pileus plano-convex, gregarious, 6–13 mm. broad; surface white with fulvous scales, the margin striate-sulcate and plicate, often splitting over the lamellae, which are distant, white, thick, attached to a collar; spores ovoid or ellipsoid, smooth, hyaline, 5×3.5 μ; stipe slender, glabrous above the annulus, fibrous-spongy within, 2.5 cm. long, 1 mm. thick; annulus fulvous.

TYPE LOCALITY: North Carolina.
HABITAT: Sandy grass plots.
DISTRIBUTION: Southeastern United States.
EXSICCATI: Rav. Fungi Am. *402*.

48. **Lepiota mississippiensis** Murrill, sp. nov.

Pileus rather thin, campanulate to expanded, umbonate, scattered, 1–2 cm. broad; surface dry, pale-yellow, densely covered with cinnamon-colored scales, not changing on drying, faintly

striate near the margin; lamellae free, crowded, ventricose, white, subfulvous on drying; spores subfusiform, appendiculate, smooth, hyaline, 12–13×6–7 μ; stipe slender, cylindric, slightly enlarged at the base, pale-isabelline, sometimes becoming reddish-brown on drying, densely fibrillose above, hollow, 2.5–4 cm. long, 1–2 mm. thick; veil very slight, evanescent, remaining in shreds on margin and stipe.

Type collected on the ground in moist, mixed woods at Ocean Springs, Mississippi, September 5, 1904, *Mrs. F. S. Earle 110*.

DISTRIBUTION: Known only from the type locality.

49. **Lepiota repanda** (Clem.) Sacc. Syll. Fung. **14**: 66. 1899.

Mastocephalus repandus Clem. Bot. Surv. Neb. **4**: 18. 1896.

Pileus fleshy, convex-repand with distinct umbo, 1.3–1.8 cm. broad; surface incarnate-ochraceous, covered with minute, crowded, granular scales; lamellae free, ventricose, white; spores ellipsoid or globose, smooth, hyaline, 5–7×5 μ; stipe slender, equal, minutely floccose-farinose, white above, pinkish-ochraceous below, hollow, 2–3 cm. long, 1–1.5 mm. thick; annulus superior, white.

TYPE LOCALITY: Lincoln, Nebraska.
HABITAT: On rich earth.
DISTRIBUTION: Known only from the type locality.

50. **Lepiota maculans** Peck, Bull. Torrey Club **32**: 77. 1905.

Pileus thin, convex, subumbonate, 1.5–2 cm. broad; surface dry, minutely and densely squamulose, reddish-yellow, darker at the center; context changing to red when wounded; lamellae free, subdistant, broad, white, gradually changing to red or pink; spores ellipsoid, pointed at the ends, uninucleate, smooth, hyaline, 8–12×5–6 μ; stipe tough, equal, whitish or yellowish, floccose or fibrillose, hollow, becoming reddish within when wounded, 5 cm. long, 2–3 mm. thick; annulus slight, evanescent.

TYPE LOCALITY: St. Louis, Missouri.
DISTRIBUTION: Known only from the type locality.

51. **Lepiota amanitiformis** Murrill, sp. nov.

Pileus convex to expanded, not bulbous, rather firm, rigid when dry, irregular at times with age, gregarious, 3–4 cm. broad; surface dry, reddish-brown, slightly darker at the center, at length cracking into minute scales, especially near the margin, and showing a white, unchanging context between the scales, margin slightly paler, entire, not inflexed on drying; lamellae crowded, white, unchanging, of medium breadth, free, somewhat ventricose, spores oblong-ellipsoid, obliquely apiculate, smooth, hyaline, 7–8×4–5 μ; stipe very short and thick, usually tapering upward from an abrupt, globose bulb at the base, white or tinged with reddish-brown, solid, subglabrous to slightly fibrillose, 2–3 cm. long, 4–8 mm. thick, the bulb reaching 1 cm.; annulus inferior, rather slight, white, usually connected with the bulb by fibrils.

Type collected in rich soil in the conservatories of the New York Botanical Garden, October 1, 1910, *W. A. Murrill*.

DISTRIBUTION: Known only from the type locality.

52. **Lepiota abruptibulba** Murrill, Mycologia **3**: 88. 1911.

Pileus fleshy, rather thin, 6–7 cm. broad, hemispheric to subexpanded, at first umbonate, at length obtuse; surface rich-reddish-brown, the cuticle breaking into minute, floccose-granular scales, not striate, darker on the umbo; lamellae white, free, crowded, unequal, rather broad; spores subglobose to ovoid, smooth, hyaline, tinged with brown, 5–5.5×4 μ; stipe cylindric, subglabrous, tinged with reddish-brown, hollow, 7 cm. long, 6 mm. thick, the base swollen into an abrupt, flattened bulb; annulus large, persistent, superior, movable.

TYPE LOCALITY: Santiago de las Vegas, Cuba.
HABITAT: On the ground in banana fields and thickets.
DISTRIBUTION: Cuba.

53. **Lepiota rubrotincta** Peck, Ann. Rep. N. Y. State Mus. **44**: 179. 1892.

Agaricus rubrotinctus Peck, Ann. Rep. N. Y. State Mus. **35**: 155. 1884.
Mastocephalus carneo-annulatus Clem. Bot. Survey Neb. **4**: 17. 1896.

Pileus thin, convex to subplane, usually umbonate, 2–8 cm. broad; surface light-red to purple, the cuticle at first continuous, later cracking radially except on the umbo and sometimes finally breaking up into appressed scales; lamellae free, close, broad, rounded, white or slightly tinged with yellow; spores ellipsoid, smooth, hyaline, appendiculate, uniguttulate, 7–12×3–6 μ; stipe equal, slightly enlarged at the base, white or with a rosy tint, glabrous or silky-fibrillose, hollow, 3–9 cm. long, 4–6 mm. thick; annulus membranous, usually persistent, entirely white or with a pink margin.

TYPE LOCALITY: New York.
HABITAT: Among leaves in thin woods or the borders of woods.
DISTRIBUTION: New England to Nebraska and south to the Gulf of Mexico.

54. **Lepiota incarnata** (Clem.) Sacc. Syll. Fung. **14**: 65. 1899.

Mastocephalus incarnatus Clem. Bot. Surv. Neb. **4**: 17. 1896.

Pileus thin, slightly fleshy, conic to campanulate, with distinct umbo, rarely convex, subcespitose, 2–4 cm. broad, 1.5–3 cm. high; surface slightly silky, pale-incarnate with darker scales, umbo becoming black, margin striate; lamellae remote, subdistant, nearly plane, white; spores ovoid-ellipsoid, smooth, hyaline, uninucleate, apiculate at one end, 5–6×3 μ; stipe slender, equal, glabrous, rarely silky, pallid or somewhat rosy, stuffed, 3–6 cm. long, 2–5 mm. thick; annulus median or superior, fixed, erect, white.

TYPE LOCALITY: Wabash, Nebraska.
HABITAT: On the ground among leaves in woods.
DISTRIBUTION: Known only from the type locality.

55. **Lepiota roseilivida** Murrill, Mycologia **4**: 234. 1912.

Pileus convex to expanded, thin, umbonate, gregarious, 2.5–4 cm. broad; surface dry, minutely and densely fibrillose-scaly, rose-lilac, livid in the center, becoming slightly darker on drying; lamellae white, unchanging, free, crowded, narrow; spores ellipsoid, smooth, hyaline, 8–9×4–5 μ; stipe slender, tapering upward, subglabrous, white or pallid, changing to lilac on drying, hollow, 7–10 cm. long, 2–5 mm. thick; annulus superior, movable, ample, membranous, lilac-tinted, becoming lilac on drying.

TYPE LOCALITY: Muir Woods, California.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

56. **Lepiota rubrotinctoides** Murrill, Mycologia **4**: 236. 1912.

Pileus convex to nearly plane, often umbonate, sometimes depressed in old plants, solitary or gregarious, 4–7 cm. broad; surface dry, subglabrous, white with rosy tints to red or purplish, the center always darker, varying from pink or red to dark-purple or blackish, cuticle even and unbroken when young, splitting radially, especially on the margin, as the pileus expands; context thin, white, drying soft and flexible; lamellae free, narrow, close, plane, white, the edges minutely serrulate; spores subovoid, smooth, hyaline, with a large, clear nucleus 7×3.5 μ; stipe long and slender, equal or slightly tapering upward, hollow, glabrous or somewhat fibrillose, white, 10–15×0.5–1 cm.; annulus superior, fixed, membranous, ample, white, persistent.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Washington, Oregon, California.

57. **Lepiota conspurcata** (Willd.) Morgan, Jour. Myc. **12**: 243. 1906.

Agaricus conspurcatus Willd. Prodr. Fl. Berl. 382. 1787.
Agaricus cristatus Bolt. Hist. Fung. Halifax **1**: 7. 1788. Not *A. cristatus* Scop. 1772.

Agaricus subantiquatus Batsch, Elench. Fung. **2**: 59. 1789.
Agaricus cristatus Fries, Syst. Myc. **1**: 22. 1821.
Lepiota cristata Quél. Champ. Jura Vosg. 34. 1872.
Lepiota angustana Britz. Ber. Nat. Ver. Augsb. **27**: 185. 1883.
Agaricus miamensis Morgan, Jour. Cinc. Soc. Nat. Hist. **6**: 63. 1883.
Lepiota castaneidisca Murrill, Mycologia **4**: 232. 1912.

Pileus fleshy, subovoid to convex and expanded, 1.5–4 cm. broad; surface radiate-fibrillose, white beneath the rufous cuticle, which is soon drawn apart into small concentric scales; context thin, white, subrufescent, odor and taste often unpleasant; lamellae rather broad, close, obtuse behind, free, white; spores variable, pointed at one end and obtuse or truncate at the other, 5–8×3–4 μ; stipe slender, tapering slightly upward, fistulose, rufescent beneath the white-fibrillose cuticle, 3–5 cm. long, 2–5 mm. thick; annulus membranous, lacerate, subpersistent.

TYPE LOCALITY: Germany.
HABITAT: Gardens, fields, and woods.
DISTRIBUTION: Throughout temperate North America; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 29 (31);* Atk. Stud. Am. Fungi *f. 83;* Gill. Champ. Fr. *pl. 417;* Hussey, Ill. Brit. Myc. 1: *pl. 48;* Jour. Cinc. Soc. Nat. Hist. 6: *pl. 3.*
EXSICCATI: Karst. Finl. Fungi *701;* Sydow, Myc. Mar. *2603;* Herpell, Präp. Hutpilze *58.*

58. **Lepiota Sequoiarum** Murrill, Mycologia 4: 233. 1912.

Pileus thin, convex to nearly plane, umbonate, gregarious, 2–4 cm. broad; surface dry, finely imbricate-fibrillose-scaly, white, the center more densely fibrillose and tinged with isabelline, the remainder of the surface being at times tinged with the same color in the scales; context loosely woven, thin, white; lamellae white, free, close, narrow; spores ovoid to ellipsoid, smooth, hyaline, 7–9×3.5–4 μ; stipe tapering upward, long, slender, white, smooth, glabrous, hollow, reaching 10 cm. long and 5 mm. thick; annulus superior, white, not fixed but collapsed on the stipe, persistent.

TYPE LOCALITY: Muir Woods, California.
HABITAT: On the ground.
DISTRIBUTION: Known only from the type locality.

59. **Lepiota amplifolia** Murrill, Mycologia 4: 233. 1912.

Pileus convex to subexpanded, umbonate, gregarious, reaching 3.5 cm. broad; surface smooth, white, polished, with a few delicate, floccose, isabelline-testaceous scales, the umbo isabelline-testaceous with cuticle subentire; lamellae free, white, not crowded, very broad and triangular; spores oblong-ellipsoid, smooth, hyaline, 8–9×3.5 μ; stipe equal, finely fibrillose, hollow, white, becoming rose-tinted on drying, 7–9 cm. long, 2–4 mm. thick; veil white, evanescent, remaining only in small fragments clinging to the margin and stipe.

TYPE LOCALITY: Glen Brook, Oregon.
HABITAT: On the ground in a dense fir forest.
DISTRIBUTION: Known only from the type locality.

60. **Lepiota subcristata** Murrill, Mycologia 3: 83. 1911.

Pileus convex, umbonate, solitary, 7.5 mm. broad, 5 mm. high; surface floccose, pale-isabelline, with dark-avellaneous, imbricate scales, the umbo smooth, purplish-fuliginous; lamellae free, white; spores ellipsoid, smooth, hyaline, 5×3 μ; stipe slender, equal, glabrous, purplish-fuliginous, 1.5 cm. long, 1 mm. or less thick; annulus slight, evanescent.

TYPE LOCALITY: Moore Town, Jamaica.
HABITAT: On rotten wood.
DISTRIBUTION: Jamaica and Grenada.

61. **Lepiota subgrisea** Murrill, Mycologia 3: 84. 1911.

Pileus small, convex to expanded, slightly umbonate, gregarious, 1–1.5 cm. broad; surface avellaneous, adorned with imbricate scales arranged in a somewhat radiate manner from the glabrous, fuliginous umbo; lamellae free, white, of medium breadth and distance; spores

ellipsoid, smooth, hyaline, uninucleate, apiculate, 7×3.5–4 μ; stipe white, glabrous, slightly tapering upward, 1.5 cm. long, 1–2 mm. thick; annulus slight, evanescent.

TYPE LOCALITY: Port Antonio, Jamaica.
HABITAT: In low ground near the coast.
DISTRIBUTION: Jamaica.

62. **Lepiota phaeosticta** Morgan, Jour. Myc. **12**: 248. 1906.

Pileus fleshy, subovoid with a blunt apex to expanded, subcespitose, 1–1.5 cm. broad; surface radiate-fibrillose, the cuticle soon separating into very minute, dark scales, which are visible as small black points on the white surface; context very thin, white; lamellae close, white, tapering behind, free and rather remote; spores oblong-ellipsoid, obliquely apiculate, 5–6×3–3.5 μ; stipe tapering upward from the clavate base, white, solid, glabrous, 1.5–2 cm. long, 1–2 mm. thick; annulus membranous, persistent.

TYPE LOCALITY: Preston, Ohio.
HABITAT: Rotten logs in woods.
DISTRIBUTION: Known only from the type locality.

63. **Lepiota Cultorum** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 35. 1887.

Agaricus (*Lepiota*) *Cultorum* Berk. & Curt. Ann. Mag. Nat. Hist. II. **12**: 418. 1853.

Pileus hemispheric, umbonate, 2.5 cm. broad; surface rough with brown, granular scales; lamellae remote, broad, ventricose; spores cymbiform, acute at the ends, smooth, hyaline, 10 μ long; stipe short, furfuraceous, 1.3–2.5 cm. long, 2 mm. thick.

TYPE LOCALITY: South Carolina.
HABITAT: Among squashes in a garden and in other cultivated grounds.
DISTRIBUTION: South Carolina and North Carolina.

64. **Lepiota avellanea** Clem. Bot. Surv. Neb. **2**: 41. 1903.

Pileus fleshy, plane, 5 cm. broad; surface dry, avellaneous, the cuticle lacerate, with appressed, brown scales toward the margin; lamellae remote, attached to an indistinct collar, cream-colored, reddish; spores irregularly ovoid, acute at one end, smooth, hyaline, 8–10× 5–6 μ; stipe bulbous, brownish-fibrillose, somewhat hollow, 4 cm. long, 8 mm. thick; annulus small, inferior, concolorous.

TYPE LOCALITY: Lincoln, Nebraska.
HABITAT: On soil in a greenhouse.
DISTRIBUTION: Known only from the type locality.

65. **Lepiota muticolor** Murrill, sp. nov.

Pileus campanulate to expanded, strongly umbonate, gregarious, 2.5–4 cm. broad; surface dry, dark-brown on the umbo, the remainder white, changing to rosy-isabelline on drying, decorated with numerous, small, brownish, fibrillose scales, margin slightly striate; lamellae free, crowded, somewhat ventricose, white changing to fulvous on drying; spores ellipsoid, becoming yellowish-brown, smooth, 8–9×6–7 μ; stipe cylindric above, subbulbous at the base, rather tough, subglabrous, white changing to reddish-umbrinous on drying, 3–5 cm. long, about 3 mm. thick; annulus median, fixed, ample, sometimes deciduous, white with a brown margin.

Type collected on a hickory log in "Palmetto Swamp" near Auburn, Alabama, September 1, 1899, *F. S. Earle*.
DISTRIBUTION: Known only from the type locality.

66. **Lepiota tepeitensis** Murrill, Mycologia **3**: 82. 1911.

Pileus convex to expanded, slightly umbonate, 3 cm. in diameter; surface white, uneven, fuliginous at the center, adorned with fuliginous, imbricate scales, the remains of the cuticle; lamellae free, white, broad, rather crowded; spores ellipsoid, smooth, pure-hyaline, usually

uninucleate, 7×4 μ; stipe white, glabrous, tapering upward, 4 cm. long, 3 mm. thick; annulus slight, evanescent.

TYPE LOCALITY: Tepeite River, near Cuernavaca, Mexico.
HABITAT: In humus in a moist virgin forest.
DISTRIBUTION: Known only from the type locality.

67. **Lepiota hortensis** Murrill, sp. nov.

Pileus strongly convex then expanded, very slightly umbonate, gregarious, reaching 8–10 cm. broad; surface dry, fibrillose, dirty-yellowish-white, unchanging, light-brown on the disk, decorated with rather large, light-brown, floccose scales somewhat concentrically arranged; margin rather thick and rounded, concolorous, distinctly striate; lamellae white, unchanging, free, crowded, somewhat ventricose; spores ellipsoid, smooth, hyaline, 8–9×6–7 μ; stipe short, rather tough, solid, subequal, at times slightly enlarged below the annulus but rarely bulbous, white and glabrous above the annulus, brownish and usually fibrillose below, 5–7 cm. long, 7–10 mm. thick; annulus median or inferior, convex, ample, brownish.

Type collected in sandy soil in a garden in Auburn, Alabama, September 2, 1899, *Mrs. F. S. Earle*.
DISTRIBUTION: Alabama.

68. **Lepiota dryophila** Murrill, sp. nov.

Pileus fleshy, fragile, convex to expanded, slightly umbonate, the umbo more distinct in dried specimens, 5–8 cm. broad; surface dry, white with chestnut-brown scales, unchanged on drying, dark-chestnut-brown on the umbo, margin white, faintly short-striate; context white, unchanging, taste mild; lamellae free, crowded, rather narrow, white, unchanging; spores broadly ellipsoid, smooth, hyaline, granular, 8–9×7–8 μ; stipe equal, often curved, not at all bulbous, floccose-scaly and white above the annulus, brownish and subglabrous below, solid, 5–8 cm. long, 6–10 mm. thick; annulus median, brownish, fragile.

Type collected on an oak log near New Orleans, Louisiana, September 8, 1908, *F. S. Earle 120*.
DISTRIBUTION: Known only from the type locality.

69. **Lepiota Glatfelteri** Peck, Bull. Torrey Club **31**: 177. 1904.

Pileus thin, convex or nearly plane, obtuse or slightly umbonate, 2.5–5 cm. broad; surface slightly and innately fibrillose, sometimes radiate-rimose on the margin, gray, grayish-brown, or brown, tinged with purple at times, the center usually darker; context white; lamellae free, white or whitish, crowded, lanceolate; spores broadly ellipsoid, smooth, hyaline, 6–8×4–5 μ; stipe equal or nearly so, firm, white, stuffed or hollow, 4–5 cm. long, 2–4 mm. thick; annulus slight, persistent.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

70. **Lepiota felinoides** Peck, Bull. Torrey Club **27**: 610. 1900.

Pileus thin, convex, subumbonate, 2.5–6 cm. broad; surface purplish-brown or blackish-brown, often darker in the center, becoming squamose by the rupturing of the cuticle; context white; lamellae thin, free, crowded, white; spores ellipsoid-ovoid, smooth, hyaline, 6–8×4–5 μ; stipe slender, slightly enlarged at the base, white, silky-fibrillose, hollow, 5–8 cm. long, 2–4 mm. thick; annulus membranous, persistent, white.

TYPE LOCALITY: St. Louis, Missouri.
HABITAT: Low shaded ground under vines in woods.
DISTRIBUTION: Known only from the type locality.

71. **Lepiota geniculospora** Atk. Ann. Myc. **7**: 372. 1909.

Pileus convex to subexpanded, slightly umbonate, reaching 1.5 cm. broad; surface brown, silky, chestnut-brown at the center, the cuticle cracking concentrically into numerous appressed chestnut-brown scales; context light-yellowish-brown after exposure; lamellae white, ventri-

cose, slightly eroded, becoming brownish on drying; spores subellipsoid, obliquely appendiculate, smooth, hyaline, 12–15×5–6 μ; stipe pale-brown, adorned with floccose, chestnut-brown scales below the point of attachment of the veil to the stipe, about 4 cm. long and 2.5 mm. thick.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground in low woods.
DISTRIBUTION: New York.

72. **Lepiota acerina** Peck, Ann. Rep. N. Y. State Mus. **51**: 283. 1898.

Pileus convex, subumbonate, 1.5–2.5 cm. broad; surface dry, floccose-squamulose, pale-tawny or subalutaceous, brownish on the umbo; lamellae free, crowded, thin, pallid, pruinose when dry; spores oblong or narrowly ellipsoid, very blunt or subtruncate at one end, smooth, hyaline, 8–11×4–5 μ; stipe equal, concolorous, floccose-squamulose below, stuffed or hollow, 2.5–4 cm. long, 4 mm. thick; annulus obsolete.

TYPE LOCALITY: North Elba, New York.
HABITAT: Prostrate mossy trunks of sugar maple.
DISTRIBUTION: Known only from the type locality.

73. **Lepiota sublilacea** Peck, Bull. Torrey Club **24**: 139. 1897.

Pileus thin, convex, obtuse or umbonate, 1.2–2.5 cm. broad; surface dry, floccose-squamulose, brownish tinged with lilac; context white; lamellae free, subdistant, rather broad, whitish; spores oblong-ellipsoid, smooth, hyaline, usually uninucleate, 10×5 μ; stipe short, concolorous below, paler at the apex, solid, 1.2–2.5 cm. long, 2–4 mm. thick; annulus slight, evanescent.

TYPE LOCALITY: Kansas.
HABITAT: On bare ground in pastures.
DISTRIBUTION: Known only from the type locality.

74. **Lepiota floralis** (Berk. & Rav.) Sacc. Syll. Fung. **5**: 51. 1887.

Agaricus (*Lepiota*) *floralis* Berk. & Rav. Ann. Mag. Nat. Hist. II. **12**: 418. 1853.

Pileus becoming plane, 1.3–2 cm. broad; surface adorned with brown, floccose scales, margin striate; lamellae free, distant, thin, ventricose, white; spores oblong, smooth, hyaline; 10–13×4–5 μ; stipe slender, attenuate below, concolorous, 0.5–2.5 cm. long, 1 mm. thick, annulus membranous, persistent.

TYPE LOCALITY: South Carolina.
HABITAT: Cultivated grounds.
DISTRIBUTION: New Jersey, North Carolina, and South Carolina.
EXSICCATI: Rav. Fungi Am. *401;* Ellis & Ev. N. Am. Fungi. *2002*.

75. **Lepiota gracilis** Peck, Bull. Torrey Club **26**: 63. 1899.

Pileus thin, convex or bell-shaped, somewhat umbonate, 0.5–1 cm. broad; surface white, the center and the scales formed from the rupturing cuticle blackish-brown; lamellae free, ventricose, crowded, whitish; spores broadly ellipsoid, 6–7×4 μ; stipe long, slender, floccose or fibrillose, blackish-brown, 2.5 cm. long, scarcely more than 1 mm. thick; annulus membranous, persistent, conspicuous, blackish-brown on the lower surface.

TYPE LOCALITY: Elmsdale, Canada.
HABITAT: Black humus in woods.
DISTRIBUTION: Canada and Michigan.

76. **Lepiota subfelina** Murrill, Mycologia **4**: 234. 1912.

Pileus thin, convex to expanded, distinctly umbonate, solitary, about 2 cm. broad; surface dry, white, densely covered with small, latericious, imbricate scales, the umbo bay, with strigose-tomentose covering; lamellae free, rather broad, plane, close, white; spores oblong-ellipsoid, smooth, hyaline, 8×4 μ; stipe very slender, slightly tapering upward, white and finely fibrillose above, avellaneous with a rosy tint below, and decorated with latericious fragments

resembling the scales on the pileus, 4 cm. long, 2–2.5 mm. thick; veil obsolete, not forming an annulus.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in woods.
DISTRIBUTION: Washington.

77. **Lepiota umbrosa** Morgan, Jour. Myc. **12**: 199. 1906.

Pileus fleshy, ovoid to campanulate and expanded, subumbonate, 1.5–2.5 cm. broad; surface radiate-fibrillose, white beneath the cuticle, which is tawny-brown, darker in the center, at maturity slightly parted into minute scales, the fibers on the umbo often acutely convergent; context thin, white; lamellae rather narrow, close, white, rounded behind, free, approximate; spores oblong-ellipsoid, obliquely apiculate, 5–6×3 μ; stipe subequal above the bulb, fistulose, fibrous-stuffed, white and smooth above the annulus, floccose-fibrillose and rufescent below, with scattered tawny scales, 4–5 cm. long, 2–4 mm. thick; veil flocculose, partly appendiculate.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On the ground in woods.
DISTRIBUTION: Known only from the type locality.

78. **Lepiota pelidna** (Berk. & Mont.) Sacc. Syll. Fung. **5**: 67. 1887.

Agaricus (*Lepiota*) *pelidnus* Berk. & Mont.; Mont. Syll. Crypt. 97. 1856.

Pileus fleshy, ovoid to convex-hemispheric, 7–9 cm. broad; surface furfuraceous, rugose, livid or greenish-livid, margin appendiculate; lamellae adnexed, rather narrow, white then reddish, with pallid edges; spores subglobose, smooth, hyaline, 10 μ long; stipe bulbous, concolorous, furfuraceous-scaly, solid, 11–15 cm. long, 1.5–2 cm. thick, the bulb 3–4 cm. thick; annulus apical, concolorous, lacerate.

TYPE LOCALITY: Columbus, Ohio.
HABITAT: On logs.
DISTRIBUTION: Known only from the type locality.

79. **Lepiota caloceps** Atk. Jour. Myc. **8**: 115. 1902.

Pileus fleshy, firm, ovoid to convex or expanded, sometimes broadly gibbous, gregarious, 4–8 cm. broad, 3–4 mm. thick; surface wood-brown to tawny-olive when young, often yellowish toward the margin, cracking areolately, showing the white context; lamellae firm, free, angular behind, crowded, dingy-white, 3–4 mm. broad, eroded on the edges; spores narrowly ellipsoid, obliquely truncate at the base, smooth, hyaline, granular, 6–8×2.5–3 μ; stipe fleshy, cylindric, somewhat bulbous, adorned with patches of the universal veil colored like the pileus, white above, dull-flesh-colored below, both without and within, hollow, 6–10 cm. long, 6–10 mm. thick.

TYPE LOCALITY: Ithaca, New York.
HABITAT: Moist woods in a ravine.
DISTRIBUTION: Known only from the type locality.

80. **Lepiota spanista** Morgan, Jour. Myc. **12**: 198. 1906.

Pileus fleshy, ovoid to campanulate and expanded, subumbonate, 3–5 cm. broad; surface radiate-fibrillose, at first continuous, alutaceous to pale-umber, the cuticle at length separating into appressed scales; context thin, white; lamellae rather broad, close, white, approximate; spores oblong-ellipsoid, 8–10×5–6 μ; stipe tapering upward from the thickened base, fistulose fibrous-stuffed, squamulose below the annulus and concolorous, 4–6 cm. long, 5–8 mm. thick; veil lacerate, appendiculate.

TYPE LOCALITY: Preston, Ohio.
HABITAT: On rotten wood in woods.
DISTRIBUTION: Known only from the type locality.

81. **Lepiota clypeolaria** (Bull.) Quél. Champ. Jura Vosg. 34. 1872.

Agaricus clypeolarius Bull. Herb. Fr. *pl. 405*. 1788.
Lepiota magnispora Murrill, Mycologia **4**: 237. 1912.

Pileus thin, fleshy, ovoid to campanulate and expanded, subumbonate, solitary or rarely gregarious, 3–7 cm. broad; surface radiate-fibrillose, white or yellowish beneath the cuticle, which is thin, at first continuous and fulvous or rufous, soon broken up except in the center and drawn apart into small scales; margin appendiculate with fragments of the veil; context thin, white; lamellae rather broad, rather crowded, free, white or yellowish; spores oblong-fusiform, smooth, hyaline, 12–20×4–7 μ; stipe tapering upward from the slightly thickened base, fistulose, fibrous-stuffed, conspicuously fibrous-floccose below the annulus and white or yellowish, silky at the apex, 5–9 cm. long, 3–8 mm. thick; veil cottony, ample, ochraceous-isabelline, usually not forming an annulus but adhering to the margin and stipe.

TYPE LOCALITY: France.
HABITAT: Woods, especially in hilly and mountainous regions.
DISTRIBUTION: Maine to Alabama and west to Oregon; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **54**: *pl. 76, f. 1–7;* Bull. Herb. Fr. *pl. 405;* Barla, Champ. Nice *pl. 13;* Fries, Ic. Hymen. *pl. 14;* Gill. Champ. Fr. *pl. 40 (416);* Sow. Engl. Fungi *pl. 14.*
EXSICCATI: Sydow, Myc. Mar. *617*.

82. **Lepiota nardosmioides** Murrill, Mycologia **4**: 238. 1912.

Pileus thick, fleshy, convex, slow to expand, 6 cm. broad in its unexpanded form, resembling that of *Armillaria nardosmia* in form and color; surface dry, fibrillose, castaneous, becoming somewhat mottled with lighter and darker areas, margin strongly incurved; lamellae free, crowded, broad, ventricose, pallid; spores ovoid to ellipsoid, smooth, hyaline with an umbrinous tint, 5–7×3.5–4 μ; stipe short, 2.5 cm. thick, bulbous, white, glabrous above and cottony below the large, membranous, simple, white, persistent annulus, which is fixed above the center of the stipe and is decidedly cottony on its lower surface.

TYPE LOCALITY: La Honda, California.
HABITAT: On humus in a redwood forest.
DISTRIBUTION: Known only from the type locality.

V. **Acutesquamosae.** Pileus decorated with prominent reflexed or pointed scales.

83. **Lepiota scabrivelata** Murrill, sp. nov.

Pileus rather fleshy, convex to expanded, gregarious, 2–3 cm. broad; surface dry, subochraceous, densely covered with rigid, pyramidal, concolorous scales, 1–2 mm. long and 1 mm. broad at the base; lamellae free, crowded, broad, white; spores ellipsoid, smooth, hyaline, 4×2–2.5 μ; stipe cylindric, not enlarged below, dry, hollow, coated like the pileus with pyramidal, yellow scales, which are smaller and partly disappear with age, 4–5 cm. long, 4–5 mm. thick; veil ample, thickly beset with yellow, pyramidal scales similar to those on the stipe, not forming a distinct persistent annulus.

Type collected on the ground in wet woods in City Park, New Orleans, Louisiana, September 6, 1908, *F. S. Earle 73*.
DISTRIBUTION: Known only from the type locality.

84. **Lepiota hemisclera** (Berk. & Curt.) Sacc. Syll. Fung. **5**: 66. 1887.

Agaricus (*Lepiota*) *hemisclerus* Berk. & Curt. Jour. Linn. Soc. **10**: 283. 1868.

Pileus convex to plane, 5–7.5 cm. broad; surface glabrous, pale-fuscous to fawn-colored, at times clouded, adorned with conic, black, rigid, wart-like scales, margin projecting; lamellae free, remote, narrow, snow-white; spores narrowly oblong, smooth, hyaline, 11 μ long; stipe enlarged below, glabrous or with a few warts where the edge of the pileus was attached, white above, concolorous below, floccose within, 5 cm. long; annulus ample, reflexed.

TYPE LOCALITY: Cuba.
HABITAT: On logs in woods.
DISTRIBUTION: Cuba.

85. **Lepiota fuscosquamea** (Peck) Sacc. Syll. Fung. 5: 37. 1887.

Agaricus (Lepiota) fuscosquameus Peck, Bull. Buffalo Soc. Nat. Sci. 1: 41. 1873.
Lepiota concentrica Murrill, Mycologia 4: 235. 1912.

Pileus rather thick, convex to subexpanded, scarcely umbonate, solitary, 3–5 cm. broad; surface dry, white with yellowish tints between concentric rows of coarse, strigose-floccose, latericious to blackish-brown, raised scales formed from the deeply ruptured cuticle, the unruptured central portion being fuliginous; margin uneven, eroded, bearing fragments of the fugacious white veil; lamellae white, free, rather broad and close; spores ovoid, smooth, hyaline, 6×3.5 μ; stipe tapering upward, decorated with fibrils from the veil, hollow, white above, cremeous to brown and more shaggy below, 7–9 cm. long, 5–15 mm. thick.

TYPE LOCALITY: Croghan, New York.
HABITAT: On the ground in woods.
DISTRIBUTION: Maine to North Carolina and west to Washington.

86. **Lepiota aspera** (Pers.) Quél. Ench. Fung. 5. 1886.

Amanita aspera Pers. Syn. Fung. 256. 1801.
Agaricus acutesquamosus Weinm. Syll. Pl. Nov. 1: 70. 1822.
Agaricus Friesii Lasch, Linnaea 3: 155. 1828.
Lepiota asperula Atk. Stud. Am. Fungi 82. 1900.
Lepiota eriophora Peck, Bull. Torrey Club 30: 95. 1903.

Pileus fleshy, hemispheric to convex and expanded, obtuse, at times depauperate, usually 7–12 cm. broad; surface appressed-tomentose, pale-ferruginous, decorated, especially near the center, with brown, compact, sometimes pointed, wart-like, separable scales; context moderately thick, white or yellowish; lamellae rather narrow, closely crowded, sometimes forked, white or yellowish, tapering behind, free, approximate; spores 5–10×2–4 μ; stipe thick, tapering upward from the bulbous base, fistulose or fibrous-stuffed, white and pruinose above the annulus, tomentose or fibrillose-scaly and ferruginous below, usually 8–12 cm. long, 8–12 mm. thick at the apex, and 18–25 mm. at the base; veil usually large, white, membranous, persistent, adherent in places to the margin of the pileus and annulate upon the stipe, at times reduced and fibrillose.

TYPE LOCALITY: Europe.
HABITAT: Rich soil or humus in woods or open places.
DISTRIBUTION: Eastern United States to Alabama and west to Iowa and Washington; also in Europe.
ILLUSTRATIONS: Gill. Champ. Fr. *pl. 33 (409), 31 (421);* Cooke, Brit. Fungi *pl. 14 (24), 1105;* Hard, Mushrooms *f. 38;* Hussey, Ill. Brit. Myc. 2: *pl. 5;* Barla, Champ. Nice *pl. 12, f. 4–7;* Bull. Chicago Acad. Sci. 7: *pl. 2, f. 1;* Atk. Stud. Am. Fungi *f. 84.*

VI. **Procerae.** Pileus large, with large scales; stipe glabrous; annulus movable.

87. **Lepiota procera** (Scop.) S. F. Gray, Nat. Arr. Brit. Pl. 1: 601. 1821.

Agaricus procerus Scop. Fl. Carn. ed. 2. 2: 418. 1772.

Pileus soft, fleshy, ovoid to expanded, umbonate, solitary or gregarious, 8–16 cm. broad; surface radiate-fibrillose and rufescent beneath the cuticle, the cuticle thick, at first smooth and continuous, rufous to umber in color, at length torn asunder, except upon the umbo, into large irregular scales which become scattered and gradually fall away, margin deflexed, silky-fibrillose; context thick, soft, white; lamellae broad, close, white, at times yellowish or pinkish, tapering slightly behind, free, remote; spores ellipsoid or obovoid, apiculate, 1–2-guttulate, 12–18×8–12 μ; stipe tall, tapering upward from the bulbous base, hollow or fibrous-stuffed, the cuticle thin, flocculose, rufous or brownish, at length drawn apart into minute scales, 15–25 cm. long, 8–16 mm. thick, the base 2–3 cm. thick; annulus thick, soft, subcoriaceous, movable, apical.

TYPE LOCALITY: Carniola.
HABITAT: Meadows, pastures, and open woods.
DISTRIBUTION: New England to Alabama and west to Nebraska; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 48: *pl. 18;* Atk. Stud. Am. Fungi *f. 81;* Barla, Champ. Nice *pl. 9, f. 1–4;* Bull. Herb. Fr. *pl. 78;* Cooke, Brit. Fungi *pl. 21 (19);* Fries, Sv. Aetl.

Svamp. *pl. 3;* Gibson, Edible Toadst. *pl. 10;* Hussey, Ill. Brit. Myc. **1**: *pl. 88;* Krombh. Abbild. *pl. 24, f. 1–12;* McIlv. Am. Fungi *pl. 13;* Schaeff. Fung. Bavar. *pl. 23;* Sow. Engl. Fungi *pl. 190;* Vitt. Descr. Funghi Mang. *pl. 24;* Mycologia **5**: *pl. 92, f. 2;* Gill. Champ. Fr. *pl. 30* (*429*).

EXSICCATI: Karst. Finl. Fungi *203;* Sydow, Myc. Mar. *301;* Roum. Fungi Gall. *4001;* Thüm. Fungi Austr. *901;* Herpell, Präp. Hutpilze *3*.

88. **Lepiota rhacodes** (Vitt.) Quél. Champ. Jura Vosg. 32. 1872.

Agaricus rhacodes Vitt. Descr. Funghi Mang. 158. 1835.

Pileus fleshy, soft, globose to expanded or depressed, usually cespitose, 7–10 cm. broad; surface dry, smooth, and brown when young, becoming very coarsely scaly except at the center from the breaking up of the cuticle; context white, becoming brownish-orange on exposure; lamellae free, remote, white; spores ovoid-ellipsoid, hyaline, 9–12×7–9 μ; stipe stout, smooth, hollow, white, strongly bulbous at the base, about 8–10 cm. long and 2 cm. thick; annulus ample, fixed, becoming movable, edge of veil double and fringed.

TYPE LOCALITY: Italy.
HABITAT: Rich soil in gardens and greenhouses.
DISTRIBUTION: Massachusetts; also in Europe.
ILLUSTRATIONS: Vitt. Descr. Funghi Mang. *pl. 20;* Hussey, Ill. Brit. Fung. **2**: *pl. 38;* Cooke, Brit. Fungi *pl. 22* (*20*); Gill. Champ. Fr. *pl. 27* (*430*).

DOUBTFUL SPECIES

Lepiota asprata (Berk.) Sacc. Syll. Fung. **5**: 48. 1887. Described from Ceylon, occurring there on the ground; and later described from New Caledonia by Cooke and Massee as *Agaricus* (*Lepiota*) *echinodermatus*. Specimens distributed by Ravenel from South Carolina, occurring on dead branches, have the same general appearance as the Ceylon plants but are probably different.

Lepiota Badhami (Berk.) Sacc. Syll. Fung. **5**: 35. 1887. The older mycologists doubtless confused *L. americana* Peck with this species.

Agaricus felinus Pers. Syn. Fung. 261. 1801. A very slender European species much like *L. conspurcata* in form, the surface white with blackish disk and concentric rows of scales. The plants formerly referred to this species in America probably belong to *L. fuscosquamea* Peck.

Agaricus mastoideus Fries, Syst. Myc. **1**: 20. 1821. American plants referred to this species by the older mycologists are only forms of *L. cretacea*.

Agaricus meleagris Sow. Engl. Fungi *pl. 171.* 1798. This species has several times been reported from North America, probably having been confused with *L. brunnescens* Peck.

Agaricus metulaesporus Berk. & Br. Described from Ceylon and often confused with *L. clypeolaria,* of which it may be a form.

Agaricus xylogenus Mont. Syll. Crypt. 122. 1856. Described from plants collected by Sullivant near Columbus, Ohio. See note in Mycologia **6**: 151. 1914.

49. **CHLOROPHYLLUM** Mass. Kew Bull. **1898**: 135. 1898.

Pileus soft, fleshy, putrescent, not viscid, squamulose; lamellae free, white, colored green by the spores at maturity; spores green; annulus persistent, movable; stipe bulbous; volva none.

Type species, *Chlorophyllum esculentum* Mass.

1. **Chlorophyllum Molybdites** Mass. Kew Bull. **1898**: 136. 1898.

Agaricus Molybdites G. Meyer, Fl. Esseq. 300. 1818.
Pholiota Glaziovii Berk. in Warming, Vidensk. Meddel. **1879–80**: 32. 1879.
Agaricus Morgani Peck, Bot. Gaz. **4**: 137. 1879.
Lepiota ochrospora Cooke & Mass. Grevillea **21**: 73. 1893.
Chlorophyllum esculentum Mass. Kew Bull. **1898**: 136. 1898.
Agaricus guadelupensis Pat. Bull. Soc. Myc. Fr. **15**: 197. 1899.

Pileus fleshy, at first globose then convex and expanded or depressed, gregarious or in rings, 10–20 cm. broad; surface white beneath the cuticle, radiate-fibrillose, the cuticle at first continuous, buff to pale-umber, soon broken up, except in the center, into irregular scales and

patches, which are gradually drawn apart and at length are more or less deciduous; context thick, firm, white, changing to reddish when bruised, poisonous to some persons; lamellae rather broad, ventricose, close, remote from the stipe, at first white then changing to a greenish hue, at length dull-green; spores in mass at first bright-green, fading to dull-green and becoming sordid with age, subellipsoid, obliquely apiculate, uniguttulate, 7–11×5–7 μ; stipe hard and firm, tapering upward from the thickened base, fistulose, fibrous-stuffed, the surface glabrous, white or buff to pale-umber, 10–20 cm. long, 1–2 cm. thick at the apex, 2–4 cm. thick at the base; annulus thick, ample, soft, subcoriaceous, movable, apical.

TYPE LOCALITY: Guiana.

HABITAT: Meadows, pastures, cultivated grounds, and open woods.

DISTRIBUTION: New Jersey to Iowa and southward to Arizona, Texas, the West Indies, and Brazil.

ILLUSTRATIONS: McIlv. Am. Fungi *pl. 14;* Jour. Cinc. Soc. Nat. Hist. **6**: *pl. 2;* Hard, Mushrooms *f. 35*.

EXSICCATI: Ellis & Ev. Fungi Columb. *1301*.

50. VAGINATA (Nees) S. F. Gray, Nat. Arr. Brit. Pl. 1: 601. 1821.

Amanita Pers. Tent. Disp. Fung. 63. 1797. Not *Amanita* Hall. 1768.
Agaricus § Vaginata Nees, Überbl. Syst. Pilze 46. 1817.
Amanitopsis Roze, Bull. Soc. Bot. Fr. **23**: 50. 1876.
Amanitella Earle, Bull. N. Y. Bot. Gard. **5**: 449. 1909.

Pileus fleshy, putrescent, glabrous, farinose, or with thin volval patches, usually striate; lamellae free; spores hyaline; stipe central, fleshy; veil none; volva adnate, fragile, or free, usually forming a basal sheath or cup.

Type species, *Amanita livida* Pers.

Volva membranous, free; stipe not bulbous.
  Volva narrow, closely sheathing the stipe.
    Volva elongate, persistent; lamellae white; pileus variously colored. — 1. *V. plumbea.*
    Volva elongate, persistent; lamellae cream-colored; pileus buff, with large, white volval patches; species confined to southern California. — 2. *V. velosa.*
    Volva short, rather friable; lamellae lemon-yellow; pileus orange-red. — 3. *V. parcivolvata.*
  Volva wide, not sheathing; pileus dull-white to yellowish, rarely reddish-brown, usually floccose or scaly. — 4. *V. agglutinata.*
Volva membranous, adnate to the base of the bulbous stipe, limb free.
  Stipe less than 3 cm. long; pileus pale-brown. — 5. *V. pusilla.*
  Stipe much longer; pileus white or yellowish. — 6. *V. albocreata.*
Volva fragile, adnate to the pileus and stipe in the form of squamules or patches.
  Pileus mealy or densely floccose; less than 5 cm. broad. — 7. *V. farinosa.*
  Pileus decorated with few or many patches; usually more than 5 cm. broad. — 1. *V. plumbea strangulata.*

1. Vaginata plumbea (Schaeff.) Murrill, Mycologia 5: 82. 1913.

Agaricus plumbeus Schaeff. Fung. Bavar. **4**: 37. 1774.
Agaricus fulvus Schaeff. Fung. Bavar. **4**: 41. 1774.
Agaricus hyalinus Schaeff. Fung. Bavar. **4**: 63. 1774.
Agaricus badius Schaeff. Fung. Bavar. **4**: 63. 1774.
Agaricus vaginatus Bull. Herb. Fr. *pl. 98*. 1782.
Amanita livida Pers. Syn. Fung. 247. 1801.
Amanita spadicea Pers. Syn. Fung. 248. 1801.
Vaginata livida S. F. Gray, Nat. Arr. Brit. Pl. **1**: 601. 1821.
Amanitopsis vaginata P. Karst. Hattsv. **1**: 6. 1879.
Vaginata vaginata Murrill, Mycologia **3**: 80. 1911.

Pileus thin, fragile, campanulate to expanded, 3–10 cm. broad; surface dry, glabrous or occasionally adorned with fragments of the volva, exceedingly variable in color, ranging from white to shades of yellow, gray, brown, and reddish-brown, the commonest color probably being plumbeous, margin deeply striate; context thin, white; lamellae free, fragile, white or sometimes tinged with yellowish or smoky-brown hues; spores globose, smooth, hyaline, 8–10 μ, rarely larger; stipe subequal, slightly attenuate upward, scarcely enlarged below, glabrous or floccose-squamulose, variable in color, hollow or stuffed, 6–16 cm. long, about 5–10 mm. thick, sometimes larger; volva conspicuous, membranous, white, persistent, elongate, sheathing the base of the stipe.

TYPE LOCALITY: Bavaria.
HABITAT: Woods and groves.
DISTRIBUTION: Greenland to Alabama and west to Oregon and California; sparingly in the northern Bahamas and the mountains of Jamaica; also in Europe and Asia.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 17;* Atk. Stud. Am. Fungi *f. 77;* Boudier, Ic. Myc. *pl. 7;* Bull. Herb. Fr. *pl. 98, 512;* Hussey, Ill. Brit. Myc. **2**: *pl. 34;* McIlv. Am. Fungi *pl. 10, f. 1;* Mycologia **1**: *pl. 7, f. 5;* Schaeff. Fung. Bavar. *pl. 85, 86, 95, 244, 245;* Vitt. Descr. Funghi Mang. *pl. 16;* Cooke, Brit. Fungi *pl. 1116, 1317;* Gill. Champ. Fr. *pl. 22 (21), 23 (24), 24 (23), 22.*
EXSICCATI: Herpell, Präp. Hutpilze *77;* Rav. Fungi Am. *397;* Karst. Finl. Fungi *202;* Sydow, Myc. Mar. *1507;* Shear, N. Y. Fungi *4.*

2. **Vaginata velosa** (Peck) Murrill, Mycologia **4**: 239. 1912.

Amanitopsis velosa Peck, Bull. Torrey Club **22**: 485. 1895.

Pileus globose to bell-shaped, at length nearly plane, 5–10 cm. broad; surface buff or orange-buff, glabrous, with conspicuous, white, felty volval patches, margin sulcate-striate; context firm, white; lamellae reaching the stipe, crowded, subventricose, pale-cremeous; spores globose, smooth, hyaline, 10–12 μ; stipe tapering upward when young, at length subequal, not bulbous, white or whitish, stuffed, 7–10 cm. long, 0.5–1 cm. thick; volva large, thick, membranous, closely sheathing, at times spreading at the apex.

TYPE LOCALITY: Pasadena, California.
HABITAT: Old pastures and thin woods.
DISTRIBUTION: Southern California.

3. **Vaginata parcivolvata** (Peck) Murrill, Mycologia **5**: 83. 1913.

Amanitopsis parcivolvata Peck, Bull. Torrey Club **27**: 610. 1900.
Amanita muscaria coccinea Beardslee, Jour. Elisha Mitchell Sci. Soc. **24**: 120. 1908.

Pileus hemispheric or convex to plane or depressed, 5–10 cm. broad; surface brilliant-orange-red, fading to yellow with age or on the margin, adorned with volval fragments which soon disappear, leaving the surface smooth and viscid, margin plicate-striate; context white tinged with orange, reddish under the cuticle; lamellae free, broad, rounded at the outer extremity, distinctly lemon-yellow, pulverulent or floccose on the edges; spores broadly ellipsoid, smooth, hyaline, 9–12×6–8 μ; stipe slender, equal or slightly tapering upward, floccose or mealy, lemon-yellow, rarely fading to white, stuffed or hollow, 8–12 cm. long, 8–12 mm. thick; volva white, slight, friable, evanescent.

TYPE LOCALITY: New Jersey.
HABITAT: Under oaks in thin woods.
DISTRIBUTION: New Jersey to North Carolina.
ILLUSTRATION: N. Marshall, Mushr. Book *pl. 1.*

4. **Vaginata agglutinata** (Berk. & Curt.) O. Kuntze, Rev. Gen. **3**: 539. 1898.

Agaricus agglutinatus Berk. & Curt. Jour. Bot. & Kew Misc. **1**: 97. 1849.
Agaricus volvatus Peck, Ann. Rep. N. Y. State Mus. **24**: 59. 1872.
Agaricus soleatus Howe, Bull. Torrey Club **5**: 42. 1874.
Amanitopsis agglutinata Sacc. Syll. Fung. **5**: 23. 1887.
Amanitopsis volvata Sacc. Syll. Fung. **5**: 23. 1887.

Pileus hemispheric to plane, sometimes slightly depressed, very variable in size, 2–8 cm. broad; surface dull-white or yellowish, rarely reddish-brown at the center or entirely reddish-brown, pulverulent, floccose-squamose, or with large volval patches; lamellae free, rounded behind, broad, crowded, white; spores ellipsoid, smooth, hyaline, 10–12×6–7 μ; stipe very variable in size, 1–7 cm. long, 3–8 mm. thick, equal or tapering upward, enlarged at the base, whitish, minutely floccose-squamose, stuffed or solid; volva unusually large, firm, membranous, persistent, more or less lobed.

TYPE LOCALITY: Society Hill, South Carolina.
HABITAT: Open woods and wood borders.
DISTRIBUTION: New England to Alabama and west to Ohio; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **53**: *pl. A, f. 6–10;* Mycologia **5**: *pl. 86, pl. 87, f. 2.*

5. **Vaginata pusilla** (Peck) Murrill, Mycologia **5**: 83. 1913.

Amanitopsis pusilla Peck, Ann. Rep. N. Y. State Mus. **50**: 96. 1898.

Pileus thin, broadly convex or plane, subumbonate, 2.5 cm. broad; surface subglabrous, pale-brown, even on the margin; lamellae free, crowded, narrow, thin, becoming brownish; spores broadly ellipsoid, smooth, hyaline, 5–6×4 μ; stipe short, bulbous, whitish, 1.5–2.5 cm. long, 2–4 mm. thick; volva adnate to the bulb, with free limb, as in *Venenarius phalloides*.

TYPE LOCALITY: Gouverneur, New York.
HABITAT: Grassy ground.
DISTRIBUTION: Known only from the type locality.

6. **Vaginata albocreata** (Atk.) Murrill, Mycologia **5**: 84. 1913.

Agaricus nivalis Peck, Ann. Rep. N. Y. State Mus. **33**: 48. 1883. Not *A. nivalis* Grev. 1823.
Amanitopsis albocreata Atk. Jour. Myc. **8**: 111. 1902.

Pileus convex to expanded, 5–8 cm. broad; surface viscid, with floccose volval patches which usually mostly disappear with age, white with yellow center, or at times entirely pale-yellow, margin finely striate and minutely tuberculate; context thin, white; lamellae free or slightly adnexed, rounded in front, narrowed behind, floccose on the edge; spores globose, smooth, hyaline, 7–10 μ; stipe cylindric or slightly tapering upward, abruptly bulbous, minutely floccose or farinose, white, hollow, 10–13 cm. long, 6–12 mm. thick; bulb ocreate, with limb narrow, as in *V. pantherinus*, and sometimes very slight; volval patches may occur in concentric lines on the lower part of the stipe.

TYPE LOCALITY: Essex County, New York.
HABITAT: Open grassy places or thin woods.
DISTRIBUTION: New York to Alabama.

7. **Vaginata farinosa** (Schw.) Murrill, Mycologia **4**: 3. 1912.

Amanita farinosa Schw. Schr. Nat. Ges. Leipzig **1**: 79. 1822.
Amanitopsis farinosa Atk. Stud. Am. Fungi 76. 1900.

Pileus thin, convex to nearly plane, 2–5 cm. broad; surface cinereous to murinous, usually darker on the disk, densely floccose-mealy or pruinose-pulverulent, deeply striate on the margin; lamellae free or adnexed, tapering behind, subcrowded, plane, narrow, white or slightly yellowish; spores globose to ellipsoid, smooth, hyaline, 6–7×5.5–6.5 μ; stipe cylindric or slightly tapering upward, subbulbous, nearly glabrous above, pruinose or floccose below, white or grayish, hollow or solid, 4–7 cm. long, 3–6 mm. thick; volva yellow, friable, floccose-powdery, grayish to fuliginous, evanescent.

TYPE LOCALITY: North Carolina.
HABITAT: Open deciduous woods.
DISTRIBUTION: New York to Alabama.
ILLUSTRATIONS: Mycologia **4**: *pl. 56, f. 5;* Atk. Stud. Am. Fungi *f. 78*.

DOUBTFUL SPECIES

Amanitopsis adnata (W. G. Smith) Sacc. Syll. Fung. **5**: 24. 1887. Described from England, and reported from this country by Morgan, Harkness, and others. I have seen no American specimens that could be so referred.

Agaricus baccatus Fries, Epicr. Myc. 12. 1838. Founded on Micheli's plate 80, figure 4, accompanied by a brief description. The warts on the pileus are too evenly distributed, and the volva is too small and circumscissile to suggest our *Vaginata agglutinata*. If an annulus were present, the figure might suggest white forms of *Venenarius pantherinus*.

Amanitopsis hyperborea P. Karst. Hattsv. **1**: 7. 1879. Reported from Greenland by Rostrup (Medd. Grönl. **3**: 528. 1888), but I have not seen it among American collections.

Agaricus praetorius Fries, Epicr. Myc. 11. 1838. Specimens of *Venenarius Caesareus* from America have been referred to this species.

Amanitopsis pubescens Sacc. Syll. Fung. **5**: 25. 1887. *Amanita pubescens* Schw. Schr. Nat. Ges. Leipzig **1**: 79. 1822. Described from specimens collected in grassy places in North Carolina. Schweinitz said it was rare, and Morgan, Beardslee, and others say that it

has not been collected since his time. The description might suggest *Vaginata farinosa* or *Vaginata agglutinata*, but Schweinitz certainly knew the former and the volva of the latter could not be characterized as "vanishing." Some forms of *Venenarius solitarius* might be thought of, but none of them are quite small enough.

Amanitopsis pulverulenta Peck, Bull. N. Y. State Mus. 116: 17. 1907. Described from plants collected by Peck on shaded roadside banks at Port Jefferson, New York, August, 1906. There are two boxes of specimens at Albany. One contains a single specimen having a long, pulverulent stipe, with bulbous base and no volva, and the pileus covered, except at the center, with a fine powder as in *Lepiota cretacea*. The other box contains several specimens, evidently the types, with short, often radicate stems and caps that are sometimes gemmate. These latter plants are certainly *Venenarius solitarius*, and there is little doubt that the species belongs in that category.

Amanitopsis strangulata (Fries) P. Karst. Hattsv. 1: 7. 1879. *Agaricus strangulatus* Fries, Epicr. Myc. 6. 1838. Much has been written about this species. Beardslee has recently studied it in Sweden and considers it distinct from *Vaginata plumbea*, being more robust and with an entirely different kind of volva. Boudier is of the same opinion. Fries's description in the *Epicrisis* and Battarra's plate call for an annulus, while Fries's later description and figure refer to the plant as we now know it. If the plant is distinct, it must have another name, selected from such synonyms as *Agaricus Ceciliae* Berk. & Br. or *Agaricus inauratus* Secr. In America, it is reported from New England to Alabama and west to Wisconsin. Variations occur all the way from the entire sheath of *V. plumbea* to the extreme form in which the volva is broken into small particles and distributed on the surface of the cap. I will admit that this extremely friable form of the volva is puzzling, but, after all, it is difficult to separate it specifically from the livid form of *V. plumbea*. Lucand has figured a specimen of *V. plumbea* in his group of *A. strangulata*. Did he get the plants mixed, or is this another indication that they are not distinct species?

51. **VENENARIUS** Earle, Bull. N. Y. Bot. Gard. 5: 450. 1909.

Amanita Pers. Tent. Disp. Fung. 63, in part. 1797. Not *Amanita* Hall. 1768.
Agaricus § *Amanita* Fries, Syst. Myc. 1: 12. 1821.

Pileus fleshy, putrescent, solitary; surface glabrous, farinose, or with volval patches; lamellae free; spores hyaline; stipe central, fleshy; veil present, forming an annulus; volva present, free to adnate.

Type species, *Agaricus muscarius* L.

Volva compound, persistent; species confined to California. — 1. *V. bivolvatus.*
Volva simple, persistent or evanescent.
  Volva free, conspicuous, persistent; stipe cylindric.
    Volva wide; lamellae yellow; pileus red or reddish. — 2. *V. Caesareus.*
    Volva narrow; lamellae white; pileus white or brown. — 3. *V. spretus.*
  Volva adnate to the base of the bulbous stipe, limb free, usually persistent.
    Spores globose or subglobose.
      Annulus becoming blackish. — 4. *V. porphyrius.*
      Annulus remaining white.
        Pileus not conspicuously striate.
          Pileus white or variously colored; stipe hollow or stuffed; spores globose, 7–10 μ. — 5. *V. phalloides.*
          Pileus white; stipe solid; spores broadly ellipsoid, 10–12 $\times$8–10 μ; species confined to California. — 6. *V. ocreatus.*
        Pileus conspicuously striate.
          Pileus 8–10 cm. broad. — 7. *V. umbrinidiscus.*
          Pileus 1.5–2.5 cm. broad. — 8. *V. virginianus.*
    Spores oblong or broadly ellipsoid.
      Annulus evanescent; species known only from Michigan. — 9. *V. Peckianus.*
      Annulus persistent; species known only from California. — 10. *V. calyptratoides.*
Volva ocreate, usually marginate; pileus covered with remnants of the volva, or rarely smooth.
  Pileus entirely smooth, nearly white, striate on the margin. — 11. *V. glabriceps.*
  Pileus covered with volval patches.
    Spores ovoid, 9 $\times$5 μ; species confined to the Pacific coast. — 12. *V. pantherinoides.*
    Spores larger or of different shape; species confined to the eastern United States.
      Pileus 3–7 cm. broad, white or tinged with yellow or olive. — 13. *V. cothurnatus.*
      Pileus 8–10 cm. broad, umber-brown, sometimes tinged with yellow. — 14. *V. velatipes.*

Volva fragile, adnate to the pileus and stipe as warts, patches, or scales; pileus rarely smooth throughout, often becoming smooth with age.
- Context staining reddish when wounded; pileus usually dull-reddish. — 15. *V. rubens.*
- Stipe staining reddish below when bruised, tomentose to floccose-scaly; pileus flavous to some shade of melleous. — 16. *V. flavorubescens.*
- Neither context nor stipe becoming reddish when wounded.
  - Pileus dark-brown, smooth throughout, margin not striate. — 17. *V. Morrisii.*
  - Pileus pale-yellow to orange.
    - Pileus pale-yellow, 4–5 cm. broad, tuberculate-striate on the margin; stipe smooth, glabrous; volva fragile, subappressed to the bulbous base. — 18. *V. russuloides.*
    - Pileus chrome-yellow to orange-yellow, 3–8 cm. broad; stipe slender, smooth, with the remnants of the fragile, yellowish volva at the base. — 19. *V. Frostianus.*
    - Pileus orange to yellow, 8–20 cm. broad; stipe usually rough, with concentric, margined scales adnate to the bulbous base. — 20. *V. muscarius.*
  - Pileus some shade of melleous or yellowish-brown, at times tinged with green; species known only from Washington and Oregon.
    - Pileus 6 cm. broad. — 21. *V. praegemmatus.*
    - Pileus 10–20 cm. broad. — 22. *V. Lanei.*
  - Pileus and stipe distinctly rose-tinted. — 23. *V. roseitinctus.*
  - Pileus milk-white or grayish, tinged with yellow at times.
    - Pileus 2.5–5 cm. broad.
      - Pileus milk-white; spores oblong, 4–5 × 2 μ; species confined to Mexico. — 24. *V. mexicanus.*
      - Pileus usually grayish; spores globose, 7.5–10 μ; species confined to New England. — 25. *V. crenulatus.*
    - Pileus 5–20 cm. broad, white to grayish, pulverulent, warty, or spiny; stipe bulbous or radicate; odor often strong, resembling chlorin; spores ellipsoid, 7–14 × 5–9 μ. — 26. *V. solitarius.*

1. **Venenarius bivolvatus** (Peck) Murrill, Mycologia 4: 241. 1912.

Amanita bivolvata Peck, Bull. Torrey Club 36: 329. 1909.

Pileus fleshy, convex or nearly plane, 7–10 cm. broad; surface at first viscid, white, brownish in the center, striate on the margin; context white; lamellae free, white, crowded, unequal; spores globose or broadly ellipsoid, smooth, hyaline, 10–12 × 8–10 μ; stipe equal, white, floccu-lose, solid, 13–15 cm. long, 1.5–2.5 cm. thick; annulus narrow, white, often disappearing with age; volva large, thick, soft, spongy, lobed on the outer margin and having an elevated entire nner margin surrounding the stipe.

TYPE LOCALITY: Claremont, California.
HABITAT: Under oak trees.
DISTRIBUTION: Known only from the type locality.

2. **Venenarius Caesareus** (Scop.) Murrill, Mycologia 5: 73. 1913.

Agaricus Caesareus Scop. Fl. Carn. ed. 2. 2: 419. 1772.
Amanita Caesarea Pers. Syn. Fung. 252. 1801.
Amanita pellucida Banning & Peck; Peck Ann. Rep. N. Y. State Mus. 44: 178. 1892.

Pileus hemispheric to expanded, 8–16 cm. broad; surface red, orange, or yellow, rarely pale-yellow, smooth, shining, occasionally decorated with a patch from the volva, margin thin, deeply striate; context yellow, unchanging, mild and agreeable to the taste, odor none; lamellae free, subcrowded, bright-yellow; spores ellipsoid, smooth, hyaline, 8–11 × 6–7 μ; stipe cylindric or subventricose, not bulbous at the base, white or pale-yellow, slightly floccu-lose, stuffed, 10–16 cm. long, 1–2 cm. thick; annulus ample, white or pale-yellow, apical; volva large, membranous, tough, white, forming a wide, free cup with lobed or toothed margin.

TYPE LOCALITY: Carniola.
HABITAT: In woods.
DISTRIBUTION: New England to Alabama and west to Ohio; also in Europe and Asia.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 48: *pl. 15;* Atk. Stud. Am. Fungi *f. 72, pl. 19, f. 2;* Bull. Herb. Fr. *pl. 120;* Bres. Funghi Mang. *pl. 1;* Dufour, Atl. Champ. *pl. 2;* Gill. Champ. Fr. *pl. 4 (7);* Krombh. Abbild. *pl. 8;* Richon & Roze, Atl. Champ. *pl. 2;* Vitt. Descr. Funghi Mang. *pl. 1.*
EXSICCATI: D. Sacc. Myc. Ital. *401;* Rav. Fungi Am. *406;* Shear, N. Y. Fungi *1.*

3. **Venenarius spretus** (Peck) Murrill, Mycologia 5: 73. 1913.

Agaricus (Amanita) spretus Peck, Ann. Rep. N. Y. State Mus. 32: 24. 1879.

Pileus subovoid to convex, at length expanded, 7–12 cm. broad; surface white or pale-grayish-brown, subviscid, glabrous or with few volval fragments, faintly striate on the margin;

lamellae adnexed, subcrowded, rather narrow, white; spores ellipsoid, smooth, hyaline, 10–12 × 6–8 μ; stipe cylindric, equal, not bulbous at the base, smooth, nearly glabrous, slightly pruinose at the apex, white, solid or stuffed, 7–10 cm. long, about 1.5 cm. thick; annulus membranous, persistent, white, attached about 1–2 cm. from the apex of the stipe; volva thin, membranous, ample, persistent, closely sheathing but not adnate.

TYPE LOCALITY: Sandlake, New York.
HABITAT: Open or bushy places.
DISTRIBUTION: Maine to Alabama, eastern United States.
ILLUSTRATION: Atk. Stud. Am. Fungi *f. 71.*

4. **Venenarius porphyrius** (Fries) Murrill, Mycologia **5**: 81. 1913.

Amanita porphyria Alb. & Schw. Consp. Fung. 142. 1805.

Pileus campanulate to expanded, solitary, 4–5 cm. broad; surface moist, subglabrous, subfuscous, varying to livid-purple or brown, smooth on the margin; lamellae adnexed, white; spores glabrous, smooth, hyaline, 8–10 μ; stipe stuffed or hollow, bulbous at the base, glabrous, whitish or subconcolorous, 6–8 cm. long; annulus membranous, persistent, superior, becoming sooty-black; volva free, whitish or subfuscous, adnate to the base of the large, rounded bulb, conspicuous, lobed, thick and fleshy, persistent.

TYPE LOCALITY: Germany.
HABITAT: In pine woods.
DISTRIBUTION: Northeastern United States; also in Europe.
ILLUSTRATIONS: Alb. & Schw. Consp. Fung. *pl. 11, f. 1;* Gill. Champ. Fr. *pl. 5* (*17*).

5. **Venenarius phalloides** (Fries) Murrill, Mycologia **4**: 240. 1912.

Agaricus phalloides Fries, Syst. Myc. **1**: 13. 1821.
Amanita phalloides Quél. Champ. Jura Vosg. 28. 1872.
Amanita floccocephala Atk. Stud. Am. Fungi 62. 1900.
Amanita lignophila Atk. Ann. Myc. **7**: 366. 1909.
Amanita bisporigera Atk. Bot. Gaz. **41**: 348. 1906.

Pileus convex or campanulate to expanded, 3–15 cm. broad; surface smooth, slightly viscid when moist, glabrous or decorated with scattered patches of the volva, varying in color from pure-white to yellow, yellowish-green, green, gray, brown, or blackish, margin rarely striate; context extremely poisonous, white, not objectionable to the taste but having at times a somewhat disagreeable odor; lamellae white, unchanging, broad, ventricose, rounded at the base and free or adnexed; spores globose, smooth, hyaline, 7–10 μ; stipe subequal, bulbous, long, smooth or floccose-scaly, usually white, stuffed or hollow, 6–15 cm. long, 0.5–1.5 cm. thick; annulus superior, membranous, thin, ample, persistent or at times becoming torn away, usually white; volva white, adnate to the base of the large, rounded bulb, the limb usually free, conspicuous, lobed, thick and fleshy, persistent, but at times breaking partly or wholly into irregular patches that are either carried up on the surface of the pileus or remain at the base of the stipe.

TYPE LOCALITY: Europe.
HABITAT: On the ground or rarely on decayed wood in woods.
DISTRIBUTION: New Brunswick to Alabama and west to Iowa and California; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 40, 41, f. 1–7;* Atk. Stud. Am. Fungi *f. 55–61;* Cooke, Brit. Fungi *pl. 2* (*2*)*;* Fries, Sv. Aetl. Svamp. *pl. 2;* Gibson, Edible Toadst. *pl. 1;* McIlv. Am. Fungi *pl. 6, f. 2, 3;* Vitt. Descr. Funghi Mang. *pl. 11, 17;* Mycologia **1**: *pl. 15, f. 2,* **5**: *pl. 87, f. 1;* Gill. Champ. Fr. *pl. 3* (*6*)*;* Atk. Bot. Gaz. **41**: *f. 1–17.*
EXSICCATI: Sydow, Myc. Mar. *616;* Cavara, Fungi Longob. *69, 155;* Shear, N. Y. Fungi *2.*

6. **Venenarius ocreatus** (Peck) Murrill, Mycologia **4**: 240. 1912.

Amanita ocreata Peck, Bull. Torrey Club **36**: 330. 1909.

Pileus fleshy, convex or nearly plane, 4–6 cm. broad; surface glabrous, smooth, white, margin not striate; context white; lamellae white, broadly sinuate, unequal, crowded; spores globose or ellipsoid, smooth, hyaline, 10–12 × 8–10 μ; stipe equal, white, glabrous or slightly fibrillose below, minutely floccose above the annulus, solid, 8–10 cm. long, 1–2 cm. thick; annulus thin, white, membranous; volva white, soft, adnate, with a well-developed, entire, free limb.

TYPE LOCALITY: Claremont, California.
HABITAT: Under oak trees.
DISTRIBUTION: Known only from the type locality.

7. **Venenarius umbrinidiscus** Murrill, Mycologia 4: 242. 1912.

Amanita umbrinidisca Murrill, Mycologia 4: 262. 1912.

Pileus fleshy, drying very thin, convex to expanded, at length depressed, umbonate, solitary, reaching 10 cm. broad; surface moist, glabrous, with large, irregular, adherent patches of the white volva, melleous, fading to stramineous on the conspicuously long-striate margin, the umbo yellow in young plants, becoming umbrinous; lamellae free, broad, not crowded, white; spores large, subglobose, smooth, hyaline, 7–9 μ; stipe white or slightly yellowish, tapering upward, 12 cm. long, 1–2 cm. thick; annulus ample, white, persistent, fixed above the center of the stipe; volva rather short, white, tough, 3 cm. broad, with subentire free limb.

TYPE LOCALITY: Seattle, Washington.
HABITAT: On the ground in a fir forest.
DISTRIBUTION: Washington.

8. **Venenarius virginianus** Murrill, sp. nov.

Pileus convex to plane, small, thin, solitary to gregarious, 2–2.5 cm. broad; surface moist to viscid, fuliginous, glabrous, margin white, long-striate; context thin, white, unchanging; lamellae free, white, unchanging, subdistant; spores subglobose to ovoid, smooth, hyaline, 10×8.5 μ; stipe cylindric and equal above, somewhat bulbous at the base, smooth, white, glabrous, 4–5 cm. long, 5 mm. thick; annulus median, white, usually persistent; volva rather large and distinct, white, adnate to the base of the stipe and forming a conspicuous cup.

Type collected on a moist, gravelly bank in oak woods near Mountain Lake, Virginia, 1300 m. elevation, July 8–14, 1909, *W. A. Murrill 28*.
DISTRIBUTION: Mountain Lake, Virginia.

9. **Venenarius Peckianus** (Kauffm.) Murrill.

Amanita Peckiana Kauffm.; Peck, Mycologia 5: 67. 1913.

Pileus at first ovoid, becoming broadly convex or nearly plane, 5–9 cm. broad; surface glabrous at first becoming fibrillose or somewhat scurfy with minute, adnate, pinkish or cream-colored squamules, white, not striate; margin at first incurved and bordered by the thickish union of the universal and partial veil, at length crenate-fringed or lacerate-appendiculate; context firm, thickish, white; lamellae free, reaching the stipe, moderately broad, much broader in front, subellipsoid, pure-white, flocculose on the edges; spores oblong, obtuse, 12–16×5–7 μ; stipe stout, tapering upward, stuffed or hollow, bulbous, 5–9 cm. long, 1–2 cm. thick; volva thick, firm, loose, margined with ovate lobes, the flesh often pinkish or salmon-colored, especially toward the base; veil very thin, evanescent, not forming a persistent annulus.

TYPE LOCALITY: New Richmond, Michigan.
HABITAT: Sandy soil under white pine trees.
DISTRIBUTION: Known only from the type locality.

10. **Venenarius calyptratoides** (Peck) Murrill, Mycologia 4: 241. 1912.

Amanita calyptratoides Peck, Bull. Torrey Club 36: 329. June, 1909.
Amanita calyptroderma Atkinson & Ballen, Ann. Myc. 7: 365. August, 1909.

Pileus fleshy, convex to nearly plane, 4–22 cm. broad, covered in the center by a single large irregular fragment or by small fragments of the volva; surface grayish-brown or lead-colored, sometimes ochraceous or cream-colored, margin striate; context white, of mild flavor; lamellae adnexed, sinuate, unequal, subcrowded, white or cremeous; spores broadly ellipsoid, smooth, hyaline, often uninucleate, usually with an oblique apiculus at one end, 8–12×6–8 μ; stipe subequal, white, striate at the top, floccose, hollow, 8–12 cm. long, 1–4 cm. thick; annulus slight, evanescent; volva white, prominent, 2–4 cm. long.

TYPE LOCALITY: Claremont, California.
HABITAT: In groves or forests.
DISTRIBUTION: California.

11. **Venenarius glabriceps** (Peck) Murrill.

Amanita glabriceps Peck, Bull. N. Y. State Mus. 131: 18. 1909.

Pileus thin, ovoid, becoming broadly convex or centrally depressed, 5–10 cm. broad; surface glabrous, viscid when moist, rarely adorned when young with a few patches of the ruptured volva, white or yellowish-white, sometimes slightly brownish in the center, margin usually finely striate; context white; lamellae thin, crowded, free, unequal, white; spores globose, smooth, hyaline, 7.5 μ; stipe long, slender, stuffed, glabrous or floccose-squamulose, white, bulbous at the base, 7.5–15 cm. long, 6–12 mm. thick; annulus thin, white, sometimes appendiculate or evanescent; volva adnate, marginate, definitely circumscissile.

TYPE LOCALITY: Coopers Plains, New York.
HABITAT: Among fallen leaves in woods.
DISTRIBUTION: New York.
ILLUSTRATIONS: Bull. N. Y. State Mus. 131: *pl. U, f. 1–4.*

12. **Venenarius pantherinoides** Murrill, Mycologia 4: 242. 1912.

Amanita pantherinoides Murrill, Mycologia 4: 262. 1912.

Pileus thick, fleshy, globose to plane, solitary, reaching 10 cm. broad; surface melleous or dirty-cremeous with brown or chestnut center, sticky when wet, slightly striate in old plants, the white volval patches small, numerous, regular, and regularly distributed until many of them fall away with age; lamellae sinuate, crowded, plane, white; spores ovoid, smooth, hyaline, 9×5 μ; stipe tapering upward, white, glabrous, reaching 11 cm. long and about 2 cm. thick, with bulbous base; annulus large, white, superior, persistent; volva ocreate, white, 3 cm. broad, tough, regular, persistent, with entire or undulate free limb.

TYPE LOCALITY: Seattle, Washington.
HABITAT: Sandy soil in open woods.
DISTRIBUTION: Washington and Oregon.

13. **Venenarius cothurnatus** (Atk.) Murrill, Mycologia 5: 74. 1913.

Amanita cothurnata Atk. Stud. Am. Fungi 66. 1900.

Pileus globose to convex, at length expanded, 3–7 cm. broad; surface quite viscid when moist, decorated with small, scattered, soft, floccose warts, white or tinged with lemon-yellow, or with the center tawny-olive, even or finely striate on the margin; context white, without odor; lamellae rounded behind, crowded, plane, white; spores globose, smooth, hyaline, 7–9 μ; stipe cylindric, bulbous, flocculose or floccose-scaly, white, hollow or rarely stuffed, 5–12 cm. long, 0.4–1 cm. thick; annulus white, thick, persistent; volva white, adnate to the large, ovoid bulb, circumscissile, breaking uniformly and leaving an abrupt ring at the top of the bulb.

TYPE LOCALITY: North Carolina.
HABITAT: On the ground in woods.
DISTRIBUTION: New York to Alabama and west to Michigan and Tennessee.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *f. 68–70;* Mycologia 5: *pl. 87, f. 6.*

14. **Venenarius velatipes** (Atk.) Murrill, Mycologia 5: 75. 1913.

Amanita velatipes Atk. Stud. Am. Fungi 63. 1900.

Pileus broadly ovoid to convex, at length expanded, thin, 8–10 cm. broad; surface viscid, decorated with scattered, white, volval scales, reddish-brown or umber-brown, sometimes yellow-tinged with the center darker, margin striate, elevated at times with age; lamellae ventricose, white; spores ovoid with unequal sides, smooth, hyaline, 8–10×6–7 μ; stipe cylindric, bulbous and abruptly pointed below, smooth or floccose-scaly, hollow or stuffed, 15–20 cm. long, 1–1.5 cm. thick; annulus white, ample, inferior, persistent; volva adnate, ocreate, white, becoming more or less torn or broken.

TYPE LOCALITY: Ithaca, New York.
HABITAT: Beech woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *f. 64–67.*

15. **Venenarius rubens** (Scop.) Murrill, Mycologia 5: 75. 1913.

Agaricus rubens Scop. Fl. Carn. ed. 2. 2: 416. 1772.
Agaricus scandiccinus Scop. Fl. Carn. ed. 2. 2: 417. 1772.
Agaricus pustulatus Schaeff. Fung. Bavar. 4: 39. 1774.
Agaricus myodes Schaeff. Fung. Bavar. 4: 69. 1774.
Agaricus verrucosus Bull. Herb. Fr. *pl. 316*. 1786.
Amanita rubescens Pers. Syn. Fung. 254. 1801.
Amanita aspera Pers. Syn. Fung. 256. 1801.
Agaricus rubescens Fries, Syst. Myc. 1: 18. 1821. Not *A. rubescens* Schaeff. 1774.
Agaricus asper Fries, Syst. Myc. 1: 18. 1821.
Agaricus magnificus Fries, Epicr. Myc. 10. 1838.
Agaricus flavorubens Mont. Syll. Crypt. 96. 1856.

Pileus ovoid to convex, at length expanded, 6–12 cm. broad; surface adorned with numerous thin, floccose or farinose warts, variable in color, always tinged with reddish or brownish-red, changing slowly to reddish when bruised, margin smooth or faintly striate; context white, changing slowly to reddish when bruised, with pleasant odor and taste; lamellae free or slightly adnexed, crowded, nearly plane, white, characteristically chalky-white when dry; spores ovoid to ellipsoid, smooth, hyaline, 8–9×6–7 μ; stipe equal or slightly tapering upward, usually bulbous, squamulose, whitish suffused with red, becoming reddish when bruised, stuffed, 6–20 cm. long, 6–12 mm. thick; annulus superior, ample, white, easily torn; volva very fragile, most of the fragments appearing on the surface of the pileus, while a few remain clinging to the margin of the bulb.

TYPE LOCALITY: Carniola.
HABITAT: Woods and groves.
DISTRIBUTION: Maine to Alabama and west to Ohio; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 48: *pl. 16;* Atk. Stud. Am. Fungi *pl. 19, f. 1;* Bull. Herb. Fr. *pl. 316;* Cooke, Brit. Fungi *pl. 9 (10), 1103;* Gill. Champ. Fr. *pl. 16 (18);* Krombh. Abbild. *pl. 10, f. 1–5;* Vitt. Descr. Funghi Mang. *pl. 41;* Mycologia 6: *pl. 113, f. 1.*
EXSICCATI: Herpell, Präp. Hutpilze *56;* Sydow, Myc. Mar. *5211;* Cavara, Fungi Longob. *70;* Karst. Finl. Fungi *501.*

16. **Venenarius flavorubescens** (Atk.) Murrill, Mycologia 5: 76. 1913.

Amanita flavorubescens Atk. Jour. Myc. 8: 111. 1902.

Pileus convex to expanded, scattered or gregarious, sometimes subcespitose, 6–10 cm. broad; surface flavous with a melleous tint to dark-brownish-melleous, usually darker at the center, adorned with yellow or brownish-yellow, floccose patches which may persist or partly disappear with age, margin faintly striate, usually paler; context thin, yellowish; lamellae free to adnexed, not crowded, oblong-elliptic in outline, white, much resembling those of *V. rubens* when dry; spores globose to ellipsoid, smooth, hyaline, 8–10×5–8 μ; stipe subequal or tapering upward, usually somewhat enlarged below, but scarcely bulbous, fibrillose or floccose-scaly, at times conspicuously roughened, characteristically tomentose when dry, concolorous or paler above, reddish below, turning slowly to red at the base when bruised, 5–12 cm. long, 5–12 mm. thick; annulus ample, membranous, persistent, flavous; volva flavous or nearly so, friable, the fragments remaining on the surface of the pileus and at the base of the stipe or disappearing according to weather conditions.

TYPE LOCALITY: Ithaca, New York.
HABITAT: Under oaks on lawns or in thin woods.
DISTRIBUTION: New York, Connecticut, and Pennsylvania.
ILLUSTRATIONS: Mycologia 5: *pl. 87, f. 4, 7.*

17. **Venenarius Morrisii** (Peck) Murrill, Mycologia 5: 75. 1913.

Amanita Morrisii Peck, Bull. N. Y. State Mus. 139: 42. 1910.

Pileus somewhat bell-shaped to broadly convex, 5–10 cm. broad; surface viscid when moist, with a separable pellicle, glabrous, not adorned with volval fragments, dark-grayish-brown or blackish-brown, slightly paler with age or on drying, margin not striate; lamellae crowded, narrow, white, slightly adnexed, rounded behind; spores subglobose or broadly ellipsoid, smooth, hyaline, 8–10×6–8 μ; stipe equal or slightly tapering upward, somewhat bulbous, flocculose, at times grayish and striate at the apex, usually white, solid or stuffed,

8–14 cm. long, 1–2 cm. thick; annulus superior, double, radiate-striate above, whitish-buff beneath, persistent; volva slight, whitish-buff, fragile, evanescent, the fragments sometimes partly adhering to the bulb but never seen on the surface of the pileus.

TYPE LOCALITY: Natick Swamp, Massachusetts.
HABITAT: Among mosses in swampy places.
DISTRIBUTION: Massachusetts.
ILLUSTRATION: Bull. N. Y. State Mus. 139: *pl. W.*

18. **Venenarius russuloides** (Peck) Murrill, Mycologia **5**: 77. 1913.

Agaricus (Amanita) russuloides Peck, Bull. Buffalo Soc. Nat. Sci. **1**: 41. 1873.

Pileus convex to expanded, 4–6 cm. broad; surface pale-yellow, at first decorated with a few white volval fragments, becoming glabrous and viscid, margin tuberculate-striate; lamellae broad, crowded, white, narrowed behind; spores ellipsoid, smooth, hyaline, 10×7–8 μ; stipe equal or slightly tapering above, bulbous, white, smooth, glabrous, firm, stuffed, 5–8 cm. long, 0.5–1 cm. thick; annulus thin, white, subevanescent; volva white, fragile, subappressed to the globose bulb, the margin entire or dentate.

TYPE LOCALITY: Greenbush, New York.
HABITAT: Grassy ground in open woods or groves.
DISTRIBUTION: Massachusetts, New York, North Carolina, and Michigan.

19. **Venenarius Frostianus** (Peck) Murrill, Mycologia **5**: 76. 1913.

Agaricus muscarius minor Peck, Ann. Rep. N. Y. State Cab. **23**: 69. 1872.
Agaricus Frostianus Peck, Ann. Rep. N. Y. State Mus. **33**: 44. 1883.
Amanita flavoconia Atk. Jour. Myc. **8**: 110. 1902.

Pileus thin, convex to expanded, plane or slightly umbonate, 3–8 cm. broad; surface viscid, adorned with floccose, yellow fragments of the volva, often becoming entirely glabrous, chrome-yellow to orange-yellow, slightly darker in the center, margin smooth or slightly striate; lamellae free, rounded at both ends, subdistant, white or yellowish; spores globose or ovoid, smooth, hyaline, 6–10 μ long; stipe slightly tapering upward from the bulbous base, white or yellowish, smooth, flocculose, stuffed, 6–13 cm. long, 0.4–1.5 cm. thick; annulus membranous, delicate, easily torn away, pale-yellow to chrome-yellow; volva yellowish, usually entirely friable, rarely slightly margining the bulb.

TYPE LOCALITY: New York.
HABITAT: Woods.
DISTRIBUTION: New Brunswick to Alabama and west to Wisconsin.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *pl. 1, f. 2;* McIlv. Am. Fungi *pl. 10, f. 5;* Mycologia **5**: *pl. 87, f. 5.*

20. **Venenarius muscarius** (L.) Earle, Bull. N. Y. Bot. Gard. **5**: 450. 1909.

Agaricus muscarius L. Sp. Pl. 1172. 1753.
Amanita muscaria Pers. Syn. Fung. 253. 1801.

Pileus globose to convex, at length nearly plane, 8–20 cm. broad; surface slightly viscid when fresh, red or orange to yellow, rarely paler, adorned with numerous whitish or yellowish warts, margin slightly striate; context white, yellow under the pellicle, extremely poisonous; lamellae white, rarely pale-yellowish, rather broad, reaching the stipe and forming slight decurrent lines upon it; spores subglobose to ellipsoid, 9–12×7–9 μ; stipe subequal, white or pale-yellowish, stuffed or hollow, usually rough with concentric, margined scales adnate to the bulbous base, 8–25 cm. long, 2–3 cm. thick; annulus superior, large, membranous, persistent, white; volva white or yellowish, usually entirely fragile, rarely slightly margining the bulb.

TYPE LOCALITY: Europe.
HABITAT: In woods and thickets.
DISTRIBUTION: Throughout temperate regions.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **48**: *pl. 42;* Atk. Stud. Am. Fungi *pl. 1, f. 1, f. 52–54;* Bres. Funghi Mang. *pl. 6;* Bull. Herb. Fr. *pl. 122;* Cooke, Brit. Fungi *pl. 117* (*5*); Dufour, Atl. Champ. *pl. 3;* Fries, Sv. Aetl. Svamp. *pl. 1;* Gibson, Edible Toadst. *pl. 4;* Gill. Champ. Fr. *pl. 8* (*12*); Krombh. Abbild. *pl. 9;* N. Marshall, Mushr. Book *pl. 3;* Richon & Roze *pl. 1;* Schaeff. Fung. Bavar. *pl. 27;* Vitt. Descr. Funghi Mang. *pl. 5;* Mycologia **5**: *pl. 85, pl. 87, f. 3.*
EXSICCATI: Herpell, Präp. Hutpilze *1;* Karst. Finl. Fungi *201;* Shear, N. Y. Fungi *3, 101;* Sydow, Myc. Mar. *618, 1004, 1005, 1006, 1007, 1008;* D. Sacc. Myc. Ital. *801.*

21. **Venenarius praegemmatus** Murrill, Mycologia 4: 243. 1912.

Amanita praegemmata Murrill, Mycologia 4: 262. 1912.

Pileus hemispheric to subexpanded, often splitting at the margin with age, scattered, reaching 6 cm. broad; surface smooth, melleous-avellaneous in the center, dark-melleous on the margin, not striate, densely covered with persistent, white, cottony, gemmate warts, the remains of the volva; lamellae free, crowded, ventricose, white; spores ovoid to subglobose, smooth, hyaline, 8–10 μ; stipe tapering upward from a bulbous base, smooth, white, reaching 7 cm. long and 1.5 cm. thick; annulus ample, white, persistent, fixed just above the middle of the stipe; volva white, 3 cm. broad, 2 cm. high, closely attached to the bulb and scarcely showing a free limb, without friable remains in the soil.

TYPE LOCALITY: Seattle, Washington.
HABITAT: In open woods.
DISTRIBUTION: Washington and Oregon.

22. **Venenarius Lanei** Murrill.

Amanita calyptrata Peck, Bull. Torrey Club 27: 14. 1900. Not *A. calyptrata* Lam. 1778.
Venenarius calyptratus Murrill, Mycologia 4: 241. 1912.

Pileus thick, fleshy, convex or nearly plane, 10–20 cm. broad; surface grayish-yellow or yellowish-brown tinged with green, often paler or more yellow on the margin, glabrous except near the center, where it is covered with a large, irregular, persistent, grayish-white fragment of the volva, margin striate; lamellae adnexed, forming slight decurrent lines on the stipe, crowded, yellowish-white tinged with green; spores broadly ellipsoid, smooth, hyaline, usually uninucleate, about 10×6 μ; stipe stout, rather long, equal or slightly tapering upward, white or yellowish-white with a faint greenish tint, 10–15 cm. long, 1.2–2 cm. thick; volva white or grayish-white, 0.5–1 cm. thick in the young stage, tough, breaking into large irregular fragments, most of which remain at the base of the stipe.

TYPE LOCALITY: Oregon.
HABITAT: In fir forests or their borders.
DISTRIBUTION: Oregon.

23. **Venenarius roseitinctus** Murrill, sp. nov.

Pileus convex, rarely expanded, solitary, 4–6 cm. broad; surface dry, salmon-colored, pulverulent, with volval patches that fall away very early; lamellae free, white, crowded; spores perfectly globose, smooth, hyaline, 7–9 μ; stipe cylindric and equal above, bulbous at the base, white tinged with salmon, dry, pulverulent, solid, 8–15 cm. long, 1.5–2 cm. thick; veil membranous, white tinged with salmon, superior, rarely persisting as an annulus; volva salmon-colored, fragile, not forming a cup.

Type collected in sandy soil in mixed woods at Biloxi, Mississippi, September 13, 1904, *Mrs. F. S. Earle 182.*
HABITAT: In dry pine woods or mixed woods.
DISTRIBUTION: Alabama and Mississippi.

24. **Venenarius mexicanus** Murrill, Mycologia 4: 332. 1912.

Leucomyces mexicanus Murrill, Mycologia 3: 80. 1911.
Amanita mexicana Murrill, Mycologia 4: 332. 1912.

Pileus convex, regular, 5 cm. broad; surface milk-white, smooth, dry, with satiny luster, adorned with patches of the membranous volva, which are 2–3 mm. broad, thin, white, separable; margin thin, entire, concolorous; context thin, white, odor distinct, pleasant; lamellae white, remote from the stipe, arcuate, narrow, crowded; spores oblong, smooth, hyaline, 4–5×2 μ; stipe cylindric, equal, white, hollow, glabrous, 4.5 cm. long, 4 mm. thick, not swollen at the base; annulus superior, membranous, ample, white, movable; volva white, circumscissile, the basal portion small, collapsed, and scarcely noticeable.

TYPE LOCALITY: Motzorongo, Mexico.
HABITAT: Rich earth in a moist virgin forest.
DISTRIBUTION: Known only from the type locality.

25. **Venenarius crenulatus** (Peck) Murrill, Mycologia **5**: 77. 1913.

Amanita crenulata Peck, Bull. Torrey Club **27**: 15. 1900.

Pileus thin, broadly ovoid, becoming convex or nearly plane, 2.5–5 cm. broad; surface whitish or grayish, sometimes tinged with yellow, decorated with a few thin, whitish, floccose warts, or with whitish, floccose volval patches, somewhat striate on the margin; context white, agreeable to the taste; lamellae white, crowded, reaching the stipe and sometimes forming decurrent lines, edges floccose-crenulate; spores globose, smooth, hyaline, usually uninucleate, 7.5–10 μ; stipe equal, bulbous, floccose-mealy above, white, stuffed or hollow, 2.5–5 cm. long, 6–8 mm. thick; annulus slight, evanescent; volva whitish, very thin and fragile, evanescent.

TYPE LOCALITY: Eastern Massachusetts.
HABITAT: Low ground under trees.
DISTRIBUTION: Massachusetts.

26. **Venenarius solitarius** (Bull.) Murrill, Mycologia **4**: 240. 1912.

Agaricus solitarius Bull. Herb. Fr. *pl. 48*. 1780.
Agaricus solitarius Fries, Syst. Myc. **1**: 17. 1821.
Agaricus strobiliformis Vitt. Descr. Funghi Mang. 59. 1835.
Agaricus echinocephalus Vitt. Descr. Funghi Mang. 346. 1835.
Agaricus polypyramis Berk. & Curt. Ann. Nat. Hist. II. **12**: 417. 1853.
Agaricus monticulosus Berk. & Curt. Ann. Nat. Hist. II. **12**: 418. 1853.
Agaricus daucipes Berk. & Mont; Mont. Syll. Crypt. 96. 1856.
Agaricus (*Amanita*) *Ravenelii* Berk. & Curt. Ann. Nat. Hist. III. **4**: 1. 1859.
Agaricus muscarius major Peck, Ann. Rep. N. Y. State Cab. **23**: 69. 1872.
Agaricus (*Amanita*) *onustus* Howe, Bull. Torrey Club **5**: 42. 1874.
Agaricus (*Amanita*) *chlorinosmus* Peck; Austin, Bull. Torrey Club **6**: 278. 1878.
Amanita candida Peck, Bull. Torrey Club **24**: 137. 1897.
Amanita prairiicola Peck, Bull. Torrey Club **24**: 138. 1897.
Amanita multisquamosa Peck, Ann. Rep. N. Y. State Mus. **53**: 840. 1900.
Amanita radicata Peck, Bull. Torrey Club **27**: 609. 1900.
Amanita cinereoconia Atk. Ann. Myc. **7**: 366. 1909.

Pileus subglobose or convex to plane, solitary, 5–20 cm. broad; surface dry, usually white or slightly yellowish, rarely cinereous or murinous, densely pulverulent, or pelliculose adorned with seceding, angular warts that may be soft, floccose and flattened or firm and erect, often becoming glabrous with age, margin smooth, at times appendiculate; context firm, white, usually of mawkish flavor and odor resembling that of chlorin; lamellae usually adnexed and rather narrow, occasionally free and rounded behind, more or less crowded. white; spores ellipsoid, smooth, hyaline, very variable in size, 7–14×5–9 μ; stipe subequal, usually radicate, bulbous or enlarged or equal below, concolorous or paler, mealy above, squamulose or imbricate-squamose below, solid or slightly spongy, 4–15 cm. long, 1–4 cm. thick; annulus white, apical, fragile or lacerate, often appendiculate or evanescent; volva white, usually friable, rarely remaining as concentric, margined scales or a short limb at the base of the stipe.

TYPE LOCALITY: Europe.
HABITAT: Open ground or in thin woods.
DISTRIBUTION: New York to Alabama and west to California; also in Europe.
ILLUSTRATIONS: Atk. Stud. Am. Fungi *f. 75, 76;* Barla, Champ. Nice *pl. 4, f. 5–8, pl. 4²;* Boudier, Ic. Myc. 1: *pl. 3, 4;* Bres. Funghi Mang. *pl. 8;* Bull. Herb. Fr. *pl. 48, 593;* Cooke, Brit. Fungi *pl. 8* (*8*), *277* (*9*); Gill. Champ. Fr. *pl. 12* (*20*), *13* (*8*); Vitt. Descr. Funghi Mang. *pl. 9;* Ann. Rep. N. Y. State Mus. **53**: *pl. B, f. 1–7.*

DOUBTFUL SPECIES

Amanita abrupta Peck, Bull. Torrey Club **24**: 138. 1897. Known only from specimens collected by Underwood and Baker in woods near Auburn, Alabama. It is near *Venenarius solitarius*, but the slender stipe terminated below by a large subglobose bulb distinguishes it from the forms of that species with which I am familiar. It is very desirable that fresh specimens be obtained and color sketches or photographs be made from them for comparison with *V. solitarius* and *V. cothurnatus*.

Agaricus bulbosus vernus Bull. Herb. Fr. *pl. 108*. 1782. It is doubtful whether this is really distinct from *Venenarius phalloides*, although some European mycologists maintain that the spores are different. I have been unable to find any North American specimens that could not be referred to the white form of *V. phalloides*.

Lepiota drymonia Morgan, Jour. Myc. **13**: 13. 1907. Collected in Vermont, on the ground in woods. Probably a form of *Venenarius solitarius*.

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